HOSPITAL DATA PROJECT

FINAL REPORT

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Acknowledgements

On behalf of the Hospital Data Project (HDP), I would like to thank all those who contributed to what has been a complex, challenging and rewarding effort. The HDP was about national data specification and collection and, as such, relied completely on the expertise and enthusiasm of national participants from all countries of the European Union and Iceland. This cooperation was freely and actively given.

Project management was shared between Ireland and the United Kingdom and proved to be a successful arrangement. Val Tyler, the Project Manager, deserves real gratitude for carrying out a difficult task with great care, persistence and attention to detail. Leading the UK team, Richard Willmer's contribution was invaluable in keeping the project focussed and moving forward. Nicola Fortune did very valuable work in elucidating coverage issues for the project. On the Irish side, I want to reserve a special thanks for Ciara O'Shea who had the role of Project Administrator but whose contribution went far beyond what would usually be expected of that title. Ciara played a lead part in all aspects of the project from administration, to data specification and reporting, and it is fair to say that the project would have had little hope of meeting its objectives without her dedicated efforts. The development of special software provided an essential tool for the project, and this was solely due to the expertise of Patrick Lynch. Data compilation also took place in Ireland and I would like to thank two colleagues, Sheelagh Bonham and Grainne Cosgrove, for their excellent work.

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Creating and sustaining a network of colleagues and counterparts across Europe is the key to advancing this kind of work within the EU. I think that I can speak for the entire project when I say that it has been a pleasure to meet and work with partners and to express the hope that we may have the opportunity to progress this important work further in the future.

Hugh Magee
Project Coordinator
Department of Health and Children
Ireland.

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Executive Summary

Background

The Hospital Data Project (HDP) is a project of the European Union Health Monitoring Programme (HMP). From its inception in 1997, the HMP has recognised the need to develop comparable hospital utilisation data and indicators between Member States (MS). The ability to measure and compare hospital activity, infrastructure and costs is increasingly essential to support health service monitoring, assessment, policy and planning both by MS and at EU level. As a measure of its importance, hospital activity data was selected as one of the first data sets to be loaded onto the Commission's pilot system for the telematic exchange of health information (HIEMS). The test data helped to demonstrate the feasibility of hospital activity data dissemination at the level of raw aggregated data sets but perhaps more significantly, it served to highlight the very low levels of comparability between the national data sets. Before the data could be considered useful, differences in health systems, coverage, comprehensiveness, definitions and classification systems needed to be addressed in a detailed and systematic fashion. The Hospital Data Project (HDP) came into being as a result of a specific call for tender in order to progress the work of creating common EU hospital data sets.

Objectives and Organisation

The HDP had two key objectives. The first was the preparation of a detailed and practical methodology for the collection of comparable hospital activity data across Europe. The second was the production of a pilot data set according to the agreed methodology and with a view to its future telematic implementation within the EU's Public Health Information Network (EUPHIN). At the beginning it was envisaged the EUPHIN (HIEMS) would provide the platform for data validation and dissemination. Since this did not prove feasible, the project found it necessary to provide other means to undertake this task. This entailed specifying and developing specialised software. It should be noted that, at an early stage, the project decided for reasons of feasibility to concentrate its efforts exclusively on national hospital activity data sets comprising inpatients and day cases. Achieving comparability on areas of infrastructure (e.g. beds), personnel and outpatients would require separate projects and alternative approaches.

All MS, Iceland and the World Health Organisation (WHO) participated in the project, and the work of coordination, research, and data collection/validation has been shared between Ireland and the United Kingdom. Critical to the success of the project has been the expertise of the national participants who, for the most part were Ministry of Health Officials, and have a detailed working knowledge of their national hospital activity data sets. A lead group comprising Ireland and the United Kingdom together with Austria, Belgium, Denmark, Greece, Portugal and Sweden assisted in directing the work. Involvement of the WHO from the outset of the project has been very beneficial and will assist in facilitating the transfer of the developed methodology throughout the European region.

Systematic Approach

At the outset, the HDP was well aware of the difficulties in achieving data comparability in an area recognised to be diverse and complex. Previous efforts to a great extent attempted to harmonise high level indicator definitions irrespective of differences in health systems, coverage and coding between countries. Inevitably, the levels of comparability achieved were very low. What the project required was a methodology which took into account, systematically, all the real and potential causes of non-comparability. Essentially, this meant basing the methodology on a detailed inventory of patient level data in each participating country. In addition, full account was taken of past and current work in the area of hospital data and of new work on the functional specification of health systems developed by the Organisation for Economic Cooperation and Development (OECD) in the context of health accounting. Account was also taken of current work in the area of health indicators such as other HMP projects and, in particular, the work of the European Community Health Indicators (ECHI) project.

Taking into account contents and coverage, the objective was to specify a Common Data Set (CDS) which maximised the areas of comparability between countries. Relying on the expertise of participants, classes of patients and data items were identified. Country-specific data transformations were developed in order to ensure consistency of definitions for variables such as age, length of stay, type of admission etc. A special expert group was commissioned to develop a new diagnosis shortlist appropriate for hospital activity and based on ICD-10. Transformations from ICD-9 into the new shortlist were also developed. A selection of hospital procedures was also agreed in order to collect test data in this area, although it was recognised that given the diversity of procedure coding systems in use throughout Europe an additional project would be required to attempt to achieve comparability of procedure data.

Following this inventory and specification exercise, countries were then requested to provide data in the CDS format for diagnosis, external cause, and selected procedures. In parallel, software was developed to store the data, to provide a tool for data validation, and to facilitate data dissemination and analysis. A very significant advantage in having this specialised software was that all participant countries could contribute to the data validation exercise both for their national data sets and with respect to all other countries submitting data.

Achievements

The HDP has realised both of its key objectives. The methodology, as described above, has been developed and implemented. The CDS has been specified and data have been collected in the required format from 16 countries. This includes both numeric activity data covering both inpatients and day cases as well as detailed metadata describing national data sets and potential causes of variation from common definitions. The constituent countries of the United Kingdom are treated separately in the CDS. While all countries but Spain submitted data, there were difficulties in the specification and formatting of data from Greece and Denmark which were not possible to resolve within the time constraints of the project.
The expert group set up to devise an ICD-10 based shortlist for hospital activity also achieved its aims. The shortlist was implemented in all countries. Following further testing with data from other countries, the list may be recommended for international use at the autumn 2003 meeting of the Heads of WHO Collaborating Centres for the Classification of Diseases.

Data on inpatients and day cases are classified by age, gender, diagnosis and type of admission (i.e. planned or unplanned). Numbers of hospital discharges, mean and median lengths of stay and population rates are reported. Data on selected external causes and selected hospital procedures has also been collected using the same classification and reporting variables. In total, in the region of 500,000 records are contained on the CDS.

Specialised software has been developed, fully implemented and distributed to participants on CD-Rom. This made it possible to validate submitted data and to provide for resubmission where this was necessary. It also provides an adaptable and user-friendly tool for data analysis, graphics and export for reporting. A key feature is the facility to open and consult metadata file windows concurrently with data analysis and/or validation.

The final deliverables for the HDP are as follows. First, this report describing the work leading to the specification of the common data set together with recommendations for the further development and delivery of hospital data within the context of the new EU Public Health Programme. Second, the CD-Rom with pilot hospital data and metadata available on the new software application.

Conclusions and Recommendations

The Hospital Data Project (HDP) should be seen as the essential first step in a continuing process of making available and improving comparable hospital activity data throughout Europe. The production of a pilot common data set based on a detailed and systematic methodology should provide a significantly better basis for comparison and for guiding further efforts. In addition, the network of expertise established by the project and the provision of extensive metadata will provide invaluable resources for subsequent projects.

Many challenges remain in this area. These include addressing the numerous areas of health system variation and differences in coding and definition which continue to mask true differences in hospital activity. They also include investigating the possibility of extending the approach, and the Common Data Set, to time series data, to candidate countries, to other categories of patients (eg. Outpatients), to measurement of patient mobility, to look at sub-national data and to facilitate the development of output and performance indicators. The WHO is of the view that further development of this work may facilitate the adoption of a standard hospital discharge data-reporting format for use by various international organisations. This would help to harmonise hospital discharge data currently being collected by EUROSTAT, WHO and OECD and would remove the unnecessary burden caused by countries having to report the same data in different formats to different international agencies.

Future work must be informed by developments in the whole area of health care information and by the requirements of the new EU Public Health Programme. Progress in the implementation of the EU public health telematic system (EUPHIN) will be essential as will the development of structures to provide for continuity of data collection and data improvement. The final Discussion section of this report includes a number of specific recommendations for both consolidating and enhancing the progress already achieved and for applying the approach more widely.

Section 1
Introduction and Rationale for Project

1.0 Introduction

This section sets out the context and rationale for the establishment of the Hospital Data Project (HDP) under the auspices of the EU's Health Monitoring Programme (HMP). It has been evident for many years that the improved availability and comparability of hospital activity information would offer significant benefits to Member States (MS), to the EU and to the wider international community. An explicit objective of the HMP was to progress this important area, and the present project resulted from a specific call for tender. It has also been evident that achieving comparability represents a considerable challenge. While taking account of prior work in this area, the HDP adopts a fresh approach which builds up a common data set based on detailed consideration of national data sets systematically addressing the range of issues affecting comparability.

1.1 Background

The Maastricht Treaty (1993)[1] gave the EU a new and extended remit in the area of public health leading, inter alia, to the First Framework for Community Action in the Field of Public Health. One of the principal priorities was the collection of reliable and comparable health statistics to support community and MS policies and programmes. The Community Action Programme on Health Monitoring (HMP)[2] was established in 1997 to advance these aims and was founded on three pillars for action:

- Identification and assembly of a set of health indicators.
- Deployment of an effective electronic system for the collection and dissemination of health information.
- Provision for analysis and reporting on EU public health issues.

The Hospital Data Project (HDP) falls under both the first and second pillars and facilitates the third.

Many HMP projects have addressed methodological issues in the production of health indicators, but the Hospital Data Project is different in approach in progressing through to the production of a common data set. In addition, the project follows the original principles of the HMP in basing its data set on raw data aggregated up from individual level data in order to provide a wide scope for analysis and the derivation of indicators.

[1] Treaty of the European Union, (Maastricht, 7 February 2002).
[2] European Commission (1997). Decision No. 1400/97/EC of the European Parliament and the Council of 30 June 1997 adopting a programme of Community action on health monitoring within the framework for action in the field of public health (1997 to 2001). Official Journal of the European Communities No. L 193/1-11, 22 July 1997.

1.2 The Importance of Hospital Data

Information on hospital infrastructure, activity, personnel and costs is of considerable importance at national level. Of course, one of the principal reasons for this is that hospitals have always been and continue to be large consumers of health service resources. In recent years, a number of additional factors have contributed to an increasing imperative to maximise the benefits of good hospital data. Hospital data are now required to serve a variety of purposes including supporting activity monitoring, performance measurement, casemix-based funding, service planning and epidemiological analysis. Within countries, hospital data are now widely used to analyse regional performance and to identify areas that may require action.

Furthermore, it is increasingly evident that the availability of truly comparable hospital data at the European level would provide an invaluable resource both for Member States and for the EU in areas of assessment, planning and policy development. At its outset, the HMP recognised this by including test hospital data as one of the initial components of its electronic Health Information Exchange and Monitoring System (HIEMS). The recommendations contained in the report of the first phase of the European Community Health Indicator project (ECHI)[3] also confirm the need for a range of good indicators of health care utilisation at hospital level.

1.3 The Challenge of Hospital Data

It is generally recognised that the development of comparable hospital data between the countries of Europe presents major challenges. At the root of many of these challenges, lies the wide variation in systems for the delivery of health care throughout the EU. Definitions of what constitutes a hospital are not consistent between countries nor are the functions carried out in a hospital setting likely to be the same from country to country. Even when comparable functions can be identified, issues of public/private mix, coverage, what constitutes a patient episode, definitions of variables and classification of diseases and procedures raise further areas of potential non-comparability.

In recent years there have been a number of initiatives across Europe aimed at developing and collecting comparable indicators for hospital and health service provision and utilisation. Such efforts, for example, by the Organisation for Economic Co-operation and Development (OECD), the World Health Organisation (WHO), the Nordic Medico-Statistical Committee (NOMESCO), and the Standing Committee of the Hospitals of the European Union (HOPE) have met with varying degrees of success. However, the underlying necessity to address all the issues raised in the preceding paragraph methodically and systematically has yet to be realised. By and large, up to the present, efforts in this area have been aimed at post-hoc harmonisation through the attempt to apply ‘standard’ international definitions across the range of diverse hospital data sets in Europe. The results have some validity, but very often variations between countries represent differences in health systems rather than in the treatment of patients.

The single notable exception to this approach was a project called the European Nervous System (ENS-Care) which, in the early 1990’s, attempted to build up comparable aggregated

[3] ECHI (2201). Design for a Set of European Community Health Indicators: Final Report of EHCI Project, 15 February 2001.

data sets based on a detailed country-by-country consideration of the contents of each national data set, and to make this data available through a system of distributed data bases. This project, which was a joint EU and WHO effort, made sufficient progress to justify the feasibility of the approach but, unfortunately, was not in a position to sustain its work. A number of the core group members of the HDP, in addition to the WHO, were involved in ENS-Care, and the present project in some respects revives the original approach. The HDP, however, has the added advantage of access to more recent work in the area of the functional specification of health care systems, in links with other HMP projects and in the increased sophistication of information technology.

Section 2
Overview of Methodology

2.0 Introduction

It is against the background outlined in the previous section that the Hospital Data Project aimed to meet the principal objective of developing comparable and consistent hospital activity data sets for dissemination and analysis. To achieve this, it was essential to adopt a 'bottom-up' approach to address systematically the issues affecting comparability.

It was apparent from the outset that the active involvement of the appropriate people in the project at national level would be a key determinant of the project's success. In particular, given the goal of producing a pilot common data set, it would be essential for participants to have a detailed working knowledge of national hospital discharge data sets.

With the right people as partners, the project was in a good position to carry out inventories of national data sets and to identify areas of comparability between countries. The goal was to maximise these common areas and to arrive at a common data set through the specification and application of country-specific data output transformations.

These objectives can be summarised as follows:

- Preparation of a detailed and practical methodology for the production of comparable hospital activity data for participant countries.
- Collection of a pilot hospital activity data set in the agreed format.

An early task was to define the practical scope of the project. After initial consultation with participants, a decision was taken to concentrate efforts on hospital inpatient and day case activity. This meant excluding outpatient and ancillary services as well as infrastructural (e.g. beds) and personnel data. This decision was based on a realistic appraisal of achievable aims but also on considerations of the importance of inpatient/day case data for health policy as well as on a preliminary assessment of data availability at the patient/episode level. It is hope that the approach can be generalised to include other areas of hospital and health care data in future projects.

2.1 Participation and Project Management

2.1.1 Participation

Each EU member state, Iceland and the WHO were represented on the project. A key objective was to ensure that the national participants, usually Ministry of Health officials, were those who had a practical familiarity and facility with hospital activity data sets. The following countries constituted the lead/core group for the project: Austria, Belgium, Denmark, Greece, Ireland, Portugal, Sweden, and the United Kingdom. The constituent countries of the United Kingdom (England, Scotland, Wales and Northern Ireland) produced separate data sets for the purposes of the project. The WHO Regional Office for Europe was directly involved in initiating the project and will be well placed in facilitating the transfer of the developed methodology throughout the European region. A list of participants is at Annex 1.

2.1.2 Project Management

In order to maximise output at the meetings and for reasons of efficiency, the project was organised on a number of levels:

- The Management Team consisted of the Project Leader (Ireland), the Project Manager, the Project Administrator and the UK representative. This team had a number of key roles: first, to identify the key stages of the project and initiate the work plan accordingly; second, to prepare documents and set the agenda for project meetings; third, to act on the recommendations that emerged out of project meetings. The Management Team was crucial for maintaining the momentum of the project and making sure the key objectives of the project as set out in the agreement were met.

- The Core Group consisted of the Management Team and representatives from 6 other Member States (Austria, Belgium, Denmark, Greece, Portugal and Sweden). The role of the Core Group was to "flesh out" initiates of the Management Team and to prepare recommendations to be put to the Full Group.

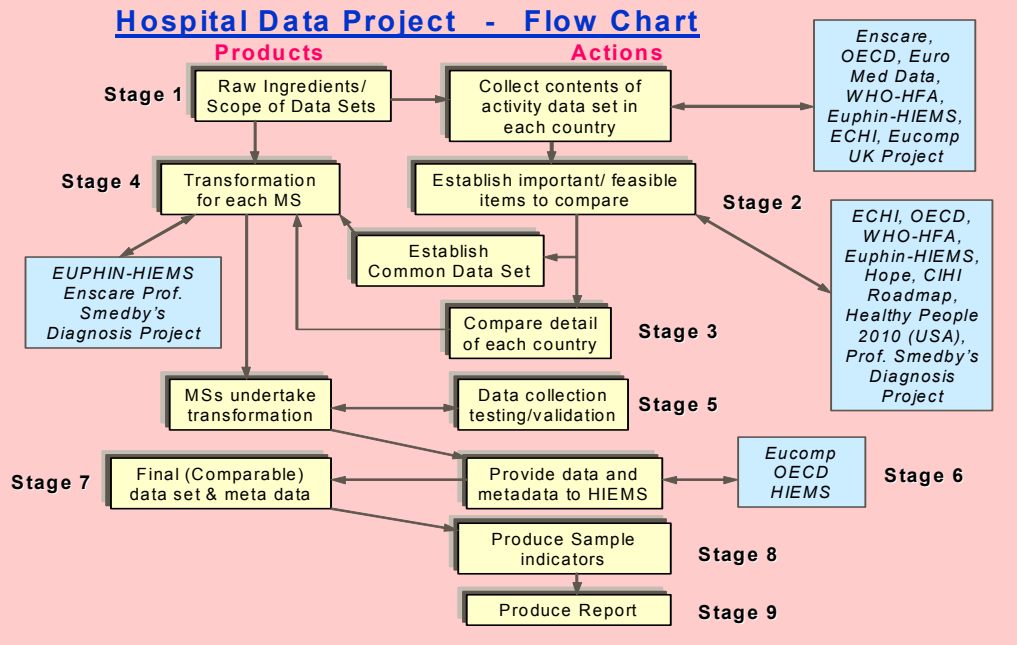
- The Full Group consisted of the Core Group plus the remaining Member States and Iceland. The role of the Full Group was to further discuss recommendations of the Core Group and to make any amendments where necessary.

The methodological theory and practice was discussed at a number of meetings as outlined below. Three Core Group meetings were held in May 2001 and January and November 2002. At these meetings countries were able to discuss various issues such as the methodology, coverage, other projects etc. before setting out their written proposals for discussion at the Full Group meetings. Three Full Group meetings were held in August 2001, May 2002 and March 2003. An Expert Group, under the chairmanship of Professor Bjorn Smedby, was set up to discuss and produce proposals for a short list on diagnosis for the Hospital Data Project. Three meetings of this group were held in the early months of 2002. In addition to the above meetings a number of Management Team meetings were held during the course of the project in order to set the agenda and timetables and to arrange the production of papers for consideration by the Core and Full Group. A short summary of all these meetings is at Annex 12.

2.2 Key Stages in the Project Methodology

The flow chart (Figure 2.1 below) sets out the logical stages of the project. The application of the project methodology consisted of successfully undertaking each of these stages in sequence. These steps are summarised below and include a reference to the subsections in the next section of this report (Section 3) which deal in detail with the work undertaken in completing each stage.

Figure 2.1



- Carry out detailed and structured inventory of national hospital activity data sets (section 3.1).
- Take into account prior initiatives in this area, and liaise with relevant existing projects (section 3.2).
- Establish common coverage definition and collecting metadata (section 3.3).
- Establish important/feasible data items offering comparability (section 3.4).
- Address specific issue of common diagnosis shortlist for hospital activity data (section 3.5.1).
- Undertake data transformation at national level (section 3.6).
- Produce test common data set (section 3.7).
- Develop software for data validation and display (section 3.8).
- Validate data and metadata (section 3.9).

Section 3
Applying the Methodology

3.0 Introduction

As discussed in Section 1.3, previous efforts at improving the comparability of hospital activity have for the most part adopted a high level approach. In effect, this has meant attempting to impose standard definitions on national data sets irrespective of fundamental differences in health systems and health information systems. The results often say more about these differences than they do about real variations in activity indicators. The Hospital Data Project started from the bottom and worked its way up in a systematic fashion. The end objective was to maximise areas of comparability between countries taking into account, as far as possible, all the areas where non-comparability might arise. This approach is more fundamental and more time consuming, but in the end offers the best prospect for useful results and providing a framework for successive improvements in comparability over time.

The previous section summarised the methodology and this section proceeds to provide a detailed description of the application of these methods in each of the identified areas where lack of comparability is an issue. These areas were listed at the end of Section 2 and broadly correspond with each of the project stages as set out in Figure 2.1 above. This section begins by considering the initial detailed inventory on national hospital activity data sets which provided the baseline information for resolving many other issues. It then deals in sequence with the general review of prior and current work in the area, issues of coverage, establishing common data items, production of a common diagnosis shortlist, specification of data files, national data transformations, software development, data validation, and final production of CD-ROM and project report.
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Section 3.1 Inventory of National Hospital Activity Data Sets

Compiling a detailed inventory of the coverage and contents of hospital activity data collections in each participating country formed the essential first phase of the project. This was a time-consuming exercise requiring extensive follow-up for clarification and completeness, but provided the basis for discussions and decisions on the feasibility of defining comparable subsets of these collections.

A standard inventory form was produced to help countries supply information and to ensure that the information supplied was in a standard format. This form was based on the type of data collected by a sample of countries. The inventory asked countries to supply information about inpatient and day case hospital activity data collected within their country and asked for details of definitions used. Countries were also asked to provide any additional information on data collected which was not included within the standard inventory form. Some countries (but these were few in number) supplied information in the form of reports from which information on hospital data was extracted. In the main there was good agreement between countries as to the type of hospital data available, with only the detail on definition and coverage differing.

Coverage included questions on both the types of hospitals covered as well as the types of patients. Countries were asked to provide national definitions of hospitals and hospital types where these existed and to describe the criteria used at national level to determine which types

of patients were included in the data collection. This information helped to inform later decisions on coverage issues (see Section 3.3.1 below).

The contents of national hospital activity data sets were also examined in depth ascertaining the type and structure of the data set as well as the range of information collected. Under type and structure, the nature of the collection in terms of aggregate versus individual record data was clarified, as was the nature of individual records. For example, some countries collect information relating to discharge from hospital while others record individual consultant episodes or ward stays etc. Record linkage capabilities were also examined and the overall frequency and timeliness of data sets was determined.

Close attention was paid to the range of information collected and to the systems and definitions in use at national level for recording this information. Variables included in the inventory were as follows:

- Coverage – patients and hospitals,
- Nature of collection (individualised or aggregate record),
- Nature of individual unit/record around which collection is framed,
- Record linkage capabilities,
- Basic statistical units capable of being analysed,
- Frequency and timeliness of data,
- Geographical information on patients and hospitals,
- Age/date of birth,
- Gender,
- Social class,
- Length of stay,
- Type of admission i.e. planned versus emergency admissions,
- Diagnoses,
- Operative procedures,
- Specialties,
- Source of admission,
- Destination on discharge.

The completed inventory form can be seen at Annex 2.

Section 3.2 Prior Initiatives and Current Projects

In parallel with the data inventory, the Hospital Data Project reviewed the literature and results of previous initiatives and established links with current work in the area of hospital data. These links were re-established at various stages of the project as shown within Figure 2.1 – the projects are listed within the "blue" boxes in the Figure at stages 1, 2, 4 and 6. Annex 3 lists prior initiatives and current projects, which were referenced by the HDP. In particular, the work of EUROSTAT, the OECD, and other projects under the Health Monitoring Programme were of special relevance. The OECD's System of Health Accounts[4] for the first time produced a model for the specification of health systems, which serves as an essential guide in ensuring that coverage relates to the same functions across countries.

[4] OECD (2000): A System of Health Accounts, version 1.0, Paris: OECD, 2000.

EUROSTAT, under its Task Force on Health Care, is advancing work on the collection and comparability of health care data based on this model, and this work is being further facilitated through the results of the EUCOMP (Towards Comparable Health Care Data in the European Union) project which describes national health systems based on these functional specifications. EUCOMP is a project under the HMP and has recently entered a second phase. Account was also taken of the earlier work carried out by the ENS-CARE project, where a similar approach was taken to that followed by the HDP.

Other completed and current HMP projects were of equal importance in ensuring that the Hospital Data Project collected data which corresponds with specific indicator requirements and, more broadly, is designed to meet the planning, evaluation and monitoring needs of the Community and of Member States. In this respect, the European Community Health Indicator (ECHI) project was central. This project has now entered a second phase (ECHI-2) where the operationalisation of indicators will be receiving closer attention, and the results of the Hospital Data Project should contribute significantly toward realising this aim in the area of hospital activity. Many other HMP projects also tie in with the Hospital Data Project if the ultimate aim of a co-ordinated system of health information is to be achieved.

This literature review, looking at work carried out by other projects, enabled the HDP to avoid duplication of work and also it ensured that any relevant work, already carried out by other projects, could be taken into account. An example of this is the use of OECD's work on the System of Health Accounts when addressing the difficult issue of coverage.

Section 3.3 Establishing Common Coverage Definition and Collecting Metadata

Section 3.3.1 Defining Coverage

It was important to develop proposals and reach an agreement on coverage of both types of patients and types of institutions to be included in the HDP. It was agreed that the project should look to the definitional framework used in the OECD System of Health Accounts (SHA), not only because it is already in use but also it was felt that in doing so it would harmonise information activity data with manpower and finance activity data. The HDP also looked at work carried out within the EUCOMP project, which itself drew heavily on the System of Health Accounts. A paper containing detailed discussion on coverage of both patients and hospitals can be seen at Annex 7.

The OECD System of Health Accounts (SHA) function categories proved to be of value in attempting to ensure comparable coverage between countries. It was, however, noted that the SHA has been primarily developed with health accounts in mind, rather than activity data, and also that the SHA itself is still evolving. So in defining coverage of the Common Data Set (CDS) it was important to consider the specific needs of the Hospital Data Project and the data that could realistically be provided by different countries. However by working with the SHA categories and definitions a consistent framework for adoption by the HDP evolved. Based on the inventory and with a view to maximising the area of coverage, the categories of patient care below were considered to be the most appropriate:

HC.1.1 In-patient curative care
HC.1.2 Day cases curative care
HC.2.1 In-patient rehabilitative care
HC.2.2 Day cases rehabilitative care

It was agreed that the CDS should contain data on inpatients and day case curative and rehabilitative care. As it was found difficult to distinguish between curative and rehabilitative care in most countries it was therefore agreed that both would be included, but not separately identified. However countries would distinguish between inpatients and day cases. While long term nursing care is provided in hospitals in some countries, it was felt that it should not be included in the CDS. In defining long term nursing care, the SHA defines it as 'a typical mix of medical and social services'. It was however recognised that, in some countries, it might not be possible to exclude long term care that is provided in hospitals, but the general principal was that data on long term care should be excluded where possible. The definitions of inpatients and day cases agreed for the HDP are based closely on definitions given in the OECD Systems of Health Accounts as follows:

- An **inpatient** is a patient who is formally admitted to an institution for treatment and/or care and stays for a minimum of one night. Inpatient care includes accommodation provided in combination with medical treatment when the latter is the predominant activity provided during the stay as an inpatient. For the CDS, patients who are admitted as inpatients but who do not in fact remain overnight for some reason (e.g. death) should be recorded as inpatients. Patients admitted with the intention of discharge on the same day, but who subsequently stay in hospital over night, should be recorded as inpatients.
- **Day care (also referred to as day case)** comprises medical and paramedical services delivered to patients that are formally admitted for diagnosis, treatment, or other type of health care with the intention of discharging the patient on the same day.

It was agreed that the CDS within the HDP would be centred closely around hospital data, with hospitals defined as in the SHA and including mental health and other specialty hospitals. But it was accepted that in some countries, inpatient and day case curative and rehabilitative care might be provided in settings that don't strictly fall within the SHA definition of hospital (e.g. day surgery centres). It was therefore considered necessary that countries would include information within their metadata where their hospitals did not agree with the standard definition.

The SHA classification does not distinguish between public and private funding, ownership or control of institutions. In Statistics on Inpatient Care (OECD 2001) the point is made that although the distinction between 'public' and 'private' may be important within a national context, it was questionable if this distinction is meaningful when making international comparisons. It was therefore agreed that the CDS should include data on all hospital activity. Where a Member State cannot provide data for a certain category of hospital (e.g. privately funded/owned hospitals, prison hospitals or military hospitals), an estimate should be sought of the proportion of total activity missing as a result (e.g. 'private hospitals are thought to account for 5% of all hospital discharges').

The following inclusions and exclusions were also agreed:

- Outpatient care should be excluded as it was felt that many countries would not be able to provide outpatient data and in particular data based on individual patient information.
- Palliative care within hospitals should be included, but palliative care provided in special palliative care centres should be excluded.

- Discharges of healthy babies should be excluded as in some countries healthy babies do not have a separate hospital record. For countries that do have separate records these can usually be identified and excluded from the CDS.
- Psychiatric, maternity and geriatric patients should be included. In some countries some of these patient groups are not included in national hospital data; for example, hospital data in Ireland contain no data from psychiatric hospitals. Where data do not include certain patient groups, this was to be clearly stated within the metadata.
- The CDS should contain data for all hospitals, including mental health and substance abuse and other specialty hospitals. It should also contain data for other providers of inpatient and day case curative and rehabilitative care, which is of a similar nature to that provided in hospitals. Examples of such establishments are day surgery centres and rehabilitation centres if these are included in the national hospital data collection for a country. Palliative care centres should be excluded.

Section 3.3.2 Collecting Metadata

The collection of metadata (i.e. information about the data) was an essential element of the hospital data project. The importance of metadata is its function in contextualising the data provided and highlighting areas where the data are not directly comparable.

The project asked countries to provide metadata on two levels. The first level dealt with "coverage" as described in the above section. That is, countries were asked to state how well they complied with the coverage definition in terms of types of hospitals and patients included in the data supplied. The second level dealt with the individual data items included in the data sets. Again, countries were asked to state how well they complied with the data item definitions agreed by the project.

This data was collected on two forms circulated to the countries (see Annex 10) and was compiled into the metadata documentation which is available on the CD-ROM. Section 4.3 provides an analysis of how well countries complied with the coverage definition and the data item definitions.

Section 3.4 Establishing Common Data Items

Taking account of both importance and feasibility, this stage of the project established the optimal areas of comparability. This was accomplished through a process of preparation and dissemination of working papers followed by discussion and agreement at project meetings. In some respects the process proved more straightforward than might initially have been expected. This was due to the practical value of the data inventory, but also to the expertise of the project participants.

Section 3.4.1 Other Projects and Indicators

It was agreed that it was important to look at the health indicators currently being developed or used to give the project some indication of the type of information considered necessary to inform health policy. Looking at data items required to support these indicators was considered important and provided pointers as to where efforts ought to be focused in producing a common data set and in terms of achieving comparability between Member States. There is probably some danger of circularity in this reasoning, because the choice of indicators is often dictated, to some extent, by what information is available. However as one of the major purposes of developing the core data set is to support comparable health

indicators within the EU, it made sense to look at indicators actually being used or developed. Eight sources of indicators were looked at, including two North American indicator projects (see Annex 4). The ECHI project was identified as a key source, as were other major international indicator sets such as OECD Health Data and WHO Health For All. Data items currently on HIEMS were also examined; though these are not indicators as such, but were still thought of as relevant. Virtually all countries collect hospital activity data at individual record level with a range of common (if not identically defined) data items and with either International Classification of Diseases (ICD) revision 9, 9-CM or 10 in use to code diagnosis. A separate sub-project was commissioned to arrive at a recommended diagnosis shortlist for the project and to ensure coding equivalence between the different ICD versions in use (see Section 3.5 below).

The approach to establish areas of comparability therefore consisted of three stages:

1. Looking at indicator lists to identify those related to hospital activity data.

2. For each inventory data item, identify all the indicators that seemed to rely on that data item.

3. On the basis of the number of indicators against each data item, a rough assessment was made of the importance or "indicator-relevance" of different data items. At this stage some detailed coding issues were also identified e.g. the level of coding detail likely to be required for particular data items. The results of this work are at Annex 4.

Section 3.4.2 Selected Data Items for Inclusion in CDS

Many of the data items were self-selecting and included the principal classification variables such as country, year, age, and gender. Data items that emerged as particularly important from an indicators perspective were age, length of stay, diagnosis and procedure. Type of admission was also included with two categories distinguishing between planned and unplanned hospitalisation.

It was not considered feasible within the scope of the project to collect data at sub-national level either for area of residence or for area where treatment occurs. It was also agreed that data items such as social class should not be included as few countries were able to supply this information easily. Likewise data items such as source of admission, destination on discharge and specialty were not required within any of the indicator requirements. The variables were as follows:

- Country
- Year
- Type of admission
- Age
- Gender
- Diagnosis/External Cause/Procedure category
- Numbers of inpatient discharges
- Numbers of bed days
- Mean length of stay
- Median length of stay

- Numbers of day case discharges.

Median length of stay was included in order to provide a measure of central tendency less affected by a small number of very long lengths of stay although it is accepted that it cannot be recalculated if further data aggregation takes place.

This exercise also highlighted some other data items that were not requested in the inventory, but were thought to be worthy of inclusion. In particular, numbers of beds and external causes as these came up in a number of indicators. However as mentioned above it had been decided to restrict information to patient-based data for this phase of the HDP and therefore it was agreed to include only external causes for this phase of the project.

The exercise also provided useful pointers on the detail of coding of data items. For example, indicators requiring diagnosis information can be divided into two broad categories in terms of the kind of information required:

- Indictors requiring a breakdown of data by broad diagnostic groups, across the full range of diagnosis.
- Indicators that focus on specific diagnoses (e.g. pneumonia) as key indicators of public health issues or the appropriateness of medical interventions.

Likewise, indicators requiring procedure information can be divided into two broad categories:

- Indicators that require only the information that a surgical procedure had taken place.
- Indicators that focus on certain key procedures (e.g. hip replacements; transplant operations).

Following discussions at project group meetings, the details of definitions, coding and specification were agreed. These can be seen at Annex 5.

Section 3.5 Common Diagnoses Shortlist, External Cause Shortlist and Procedure List

Section 3.5.1 Diagnoses Shortlist

As indicated above, the development of a common diagnoses shortlist for hospital activity data was carried out as a specially commissioned subproject. This was considered necessary for a number of reasons. First, it was clear from the inventory that a number of ICD versions were in use throughout Europe. Second, decisions on a suitable shortlist would depend critically on the uses for which the data were intended. Areas of interest and importance from the perspective of mortality do not correspond directly with those having a high priority for the analysis of hospital utilisation and morbidity. Thirdly, disease and diagnosis classification systems are areas requiring specialist expertise.

Professor Bjorn Smedby at Uppsala University, Head of the WHO Collaborating Centre for the Classification of Diseases in the Nordic Countries, a recognised expert in this area, was approached to put together a small expert group to devise a suitable shortlist (see Annex 8 for membership of Expert Group). The group was asked to examine possible methods for

achieving comparability between the diagnostic information at patient level collected in each country and to arrive at a recommended shortlist of ICD codes for hospital inpatients.

Three meetings of the Expert Group were held in January, February and April 2002.
The Expert Group began by reviewing existing diagnostic shortlists and, fairly quickly, concluded that it would not be possible to construct a new shortlist based on groups common to existing shortlists. From previous experience it was known that there were differences in the use of certain ICD codes due to differences in diagnostic traditions, registration rules and coding guidelines. Therefore, an initial review was made of the frequency of all-single, three character ICD-10 codes used for main condition in three sets of national hospital discharge data. The Expert Group had patient-level data available for France, England and Sweden and began its work of constructing a new shortlist by examining the frequency of all-single, three-character ICD-10 codes for principal diagnosis. After studying this test data, the Expert Group established a set of principles on which the shortlist should be based. These included basing the shortlist on ICD-10 codes as it was felt that the list should be future oriented and be in use for a number of years, using frequently occurring three-character ICD-10 codes as groups in their own right and including remainder groups within chapters to bring together codes not selected for separate presentation. In addition to frequency, groups were chosen from a hospital activity analysis point of view and for their public health importance. A limit of 150 was put on the total allowable number of groups, and, in the end, the recommended shortlist contained 130 specified groups. The groups can be combined to broader groups to the ICD-10 chapters. The full list comprises 149 groups and a table presenting all groups as well as summary groups and a grand total is available at Annex 6.

Section 3.5.2 External Cause Shortlist
Preliminary recommendations were also made for using external cause codes, and a provisional list comprising 9 groups was suggested. External cause codes are included to a varying extent in European hospital data registration, and even in countries that do register this information; there is often considerable underreporting of external causes. However as other ways of collecting this type of information are costly it was thought that it would be reasonable to collect available data in terms of an external cause code from chapter XX of ICD-10 for cases with main condition coded in chapter XIX. It was also recommended that external cause information should be registered apart from other diagnoses and tabulated separately in a few broad groups.

Section 3.5.3 Procedure Shortlist
It was not possible within the scope of the project to conduct a similar exercise with respect to data on hospital procedures. This was due both to resource constraints but also to the absence of an international procedure classification corresponding to ICD and to the wide variety of procedure coding systems currently in use throughout Europe. The Expert Group reviewed some available shortlists for surgical procedure and noted similarity among some of these lists. OECD and NOMESCO both use quite limited lists with a similar selection of sentinel procedures. A decision was taken to collect data on a shortlist of 18 selected procedures specified in codes from ICD-9-CM part 3 and to ask countries to translate codes within their own systems into the agreed format. Procedures were selected to include examples of high volume, high cost, and borderline inpatient/day case procedures. Issues of public health importance and achieving variety in terms of body systems and specialties were also taken into account. It was hoped that data collected in this way would prove useful in future efforts to arrive at comparable procedure coding.

A paper describing the work carried out by Professor Smedby and the Expert Group is at Annex 9.

Section 3.5.4 WHO Working Group on Hospital Data

In October 2002, Professor Smedby presented reports on the recommended shortlist of diagnoses and the list of selected procedures at the Annual Meeting of Heads of WHO Collaborating Centres for the Classification of Diseases. The diagnoses shortlist was well received at the meeting and it was agreed to establish a hospital data subgroup to undertake preliminary work to investigate the comparability of hospital data internationally. The group will review the proposed diagnoses shortlist, test it with data from other countries and also obtain feedback on the sentinel list of procedures. A report will be prepared for the 2003 annual meeting. After possible revision the diagnosis list may be recommended for international use.

Section 3.6 Data Transformation at National Level

Based on the identified areas of comparability, the project proceeded to specify a common data set for hospital inpatient and day case activity for participant countries. Commonality extended to coverage, year of discharge, types of patients to be included, definitions of length of stay, use of the new diagnoses shortlist etc. Common rules for the aggregation of the patient-level data also needed to be defined. In addition, common codes (e.g. age group codes), standard file formats and file names were agreed.

Each country was asked to return four data files referring to the year 1999 wherever possible. These were respectively diagnoses data, external cause data, procedures data and population data. The first two files used the recommendations of the Expert Group (see above). The procedures file, again as indicated above, was based on a provisional list of 18 procedures for test purposes with countries providing their own correspondence with ICD-9-CM codes. All three files shared the same format and same analysis variables. The last file requested referred to population data classified by age group and sex and allowed for the calculation of population-based rates for each of the three data files.

Each country was also asked to supply metadata information for each data item collected in the common data set. Countries were also asked to supply metadata on their procedure coding system and details of the mapping used for coding into the 18 test sentinel procedures requested.

Clear and comprehensive instruction manuals were issued to each participant requesting both data files and metadata (Annex 10).

Section 3.7 Producing Test Common Data Set

Data were supplied in standard .csv format and transferred electronically to the Department of Health and Children in Ireland. In general, approximately 20,000 records per country were generated. Calculation of totals and subtotals for all the classification variables was undertaken by the Department in Ireland. Calculation of population-based rates was also undertaken centrally. Standard programmes written in SAS (Statistical Analysis System) code were written to carry out this process. Central processing of totals helped to simplify the task for participant countries. It also limited the file sizes which needed to be transferred from each country and, perhaps most usefully, provided a means for internal data validation. For example, taking age group as a classification variable. Total for all age groups was computed centrally for each country. This 'total' variable value for age group was computed for all combinations of other classification variables (e.g. gender, type of admission, diagnosis), including the 'total' values for these other variables.

Where obvious errors in either format or content of national data sets became apparent, countries were asked to resubmit corrected data as soon as possible. Compliance with these requests was very good (see 3.9 below).

Section 3.8 Software for Data Validation and Display of Data and Metadata

Customised software (EUHDP) was developed in Ireland to assist in data validation and to provide a means for the dissemination and utilisation of the results of the project. The software is based on the development product 'Delphi'. It is easy to use and has a wide range of features. These include subsetting, sorting, graphics, mapping and the facility to download data and graphics directly into text and spreadsheet files. Data are stored in tables on a Borland database. Subtotals, totals and population-based rates have been generated using SAS prior to loading the tables onto the Delphi system.

It should be emphasised that the EUHDP is essentially a data display system. All four of the tables contain pre-calculated information. When a query is submitted to the system, the selected records are extracted and displayed. To some extent this feature can be said to limit the flexibility of the system, but it also ensures that confusion will not result from the proliferation of differing user-defined indicators. Given the early stages of collection of raw aggregated hospital activity data, it is considered advisable not to introduce a further potential source of non-comparability of indicators.

The instruction manual for using the system is at Annex 11. This manual gives detailed explanations of how to use the data and metadata display system, the content and structure of the data and metadata tables.

Section 3.9 Data and Metadata Validation

Data and metadata were received from 18 countries (including the 4 UK constituent countries – England, Northern Ireland, Scotland and Wales). This information was received through the latter months of 2002 and early months of 2003. Once the data and metadata were received centrally they were checked to ensure that all four files (Diagnosis, External Cause, Procedure and Population) were present and if all files were not available a check was made as to whether this was due to non-availability or whether further files were to follow. Some countries were unable to provide external cause data or procedure data. A check was also carried out to ensure that the data was in the correct format before it could be taken onto the

EUHDP software. Checks were also carried out at this stage to ensure that the files were as far as possible complete. It was also necessary to ensure that all metadata had been received. These checks had to be carried out quickly so that countries could be notified as soon as possible about missing files, data or metadata. It was very time consuming and concentrated activity, but countries were in the main quick to respond and provide the necessary information. Once the data files passed the initial data checks, carried out using SAS, they were converted into Borland database format and loaded onto the EUHDP. A number of additional checks and analyses were then carried out centrally.

After central validation, the CD-ROM containing all data and metadata was sent to each participant country. This was accompanied by a package of documents including a range of validation checks for countries to carry out both within and between national data sets as well as a structured feedback form for setting out reactions and comments on both the data and the software (see Annex 13).

The ability of the project to both collect large amounts of data and to make this data rapidly available for validation and analysis to all participant countries is considered to be one of the greatest strengths of the project. In effect, this facility meant that all countries played an active role in checking their own data, other countries data, cross-country comparisons, metadata, and software functionality.

For nearly all countries, the process of validation led to a resubmission of final corrected data sets during the first half of 2003. This data and metadata is contained on the CD-ROM submitted by the project.

Section 4
Results

Section 4.0 Introduction

The Hospital Data Project achieved its twin aims of developing a methodology for improved comparability of hospital activity data between member states and of delivering a pilot raw aggregated data set based on that methodology. At the beginning of the project, it was anticipated that the HIEMS system would provide the vehicle for storing and disseminating the pilot data. Due to the unavailability of HIEMS for this purpose, the project undertook a major additional task in developing its own software application to meet this need. In the end, this was perhaps fortuitous since it gave the project the facility and flexibility for data compilation, validation, analysis and dissemination.

An important result of the project is the clear realisation that the HDP represents the first stage of the work required in a complex and challenging area. In this section, the principal results of the project are discussed and the areas requiring further development and improvement are highlighted.

Section 4.1 Organisation

The Organisation of the Hospital Data Project consisted of three levels :

(i) Management Team
(ii) Core Group
(iii) Full Group

Section 2.1.1 set out the rationale for this organisational arrangement which was felt to have worked very well. All member countries attending the final Full Group meeting on 27/28 March 2003 voiced their approval and support for it. It was agreed that this type of structure should continue if another phase of the project or a continuation of the work in some form or another was approved.

The management team experienced a few problems in the early stages of the project trying to ensure that the person qualified to provide the best input and contribution to the project represented each country. It was therefore felt that the success of the project had been, in no small measure, due to the expert contribution provided by each country.

Section 4.2 Related Projects

It was generally agreed by member countries that it had been necessary and important to look at work carried out in other EU projects to enable the HDP avoid duplication and to take on board any relevant areas of work. By so doing it was felt that the HDP was not “reinventing the wheel” by revisiting areas already considered, but also the project was able to incorporate work already carried out elsewhere and ensuring that the work of the HDP was in step with work carried out by other similar EU projects. The time spent on this area of work was considered to be essential and important to the success of the project.

Section 4.3 Data and Metadata Results

Section 4.3.1 Data Supplied

All 15 EU Member States plus Iceland participated in the project and Table 4.1 below summarises the data supplied by each country. Ability to supply data varied from country to country. Spain was not able to provide any data largely due to staff changes. Greece was not able to provide data in a format that could be could be used in the HDP common data sets[5]. All other countries were able to supply data for at least one of the HDP common data sets. (N/A in the table below means data is not available.)

Table 4.1 Data Supplied by HDP Participants

	Country	Diagnosis File	External Cause File	Procedure File	Population Data File
1	**Austria**	Y	N/A	Y	Y
2	**Belgium**	Y	Y	Y	Y
3	**Denmark**	Y	Y	Y	Y
4	**Finland**	Y	Y	Y	Y
5	**France**	Y	N/A	Y	Y
6	**Germany**	Y	N/A	N/A	Y
7	**Greece**	Y	N/A	Y	Y
8	**Iceland**	Y	Y	Y	Y
9	**Ireland**	Y	Y	Y	Y
10	**Italy**	Y	Y	Y	Y
11	**Luxembourg**	Y	N/A	Y	Y
12	**Netherlands**	Y	Y	Y	Y
13	**Portugal**	Y	Y	Y	Y
14	**Spain**	N	N	N	N
15	**Sweden**	Y	Y	Y	Y
16	**UK-England**	Y	Y	Y	Y
17	**UK-Northern Ireland**	Y	Y	Y	Y
18	**UK-Scotland**	Y	Y	Y	Y
19	**UK-Wales**	Y	Y	Y	Y

Unfortunately, Danish data was excluded from the CD-Rom submitted with this report due to data validation issues that could not be resolved before the report was submitted.

Section 4.3.2 Coverage Results

As mentioned in earlier discussion, a key element in achieving comparability of data was to make sure that the data collected from each country refer to the same type of hospital activity. In an effort to address the problematic issue of the variety of healthcare systems in Europe and the provision of health care in different settings, definition were based around patients

[5] Despite great efforts on the part of the Greece, data in the required format could not be supplied. Data is not available centrally in a disaggregate or electronic format. Neither is diagnosis coded according to ICD-9 or ICD-10. For these reasons, Greece supplied a small sample of data but to an insufficient degree of detail.

receiving specific types of care rather than the institutional setting in which the care was received. In order to achieve this the functional specifications developed by the OECD in its System of Health Accounts provided the necessary framework. However, certain types of care can only be received in certain institutions/settings and thus the setting in which the care was received could not be completely omitted from the definition (see section 3.3.1 and Annex 7 for full details).

In order to complete the metadata on coverage, each project participant had to consider whether the data provided fully complied with the coverage definition for the Hospital Data Project. Where a country could not fully comply with the coverage definition, details on the missing groups of patients were requested. This included, where possible, an estimate of the missing activity as a percentage of the total activity that should be included in the data submitted to the HDP data sets.

The purpose of this exercise was to enable users of the data to fully interpret the data where analysis is being carried out. For example, variance between countries may be due to lack of coverage of certain groups of patients rather than an actual variance in activity/morbidity.

Table 4.2 below summarises the coverage metadata supplied by each country. The table is divided into two sections. The first section summarises those patients to be included in the HDP data sets and the second section summarises those patients to be excluded from the HDP data sets.

It is clear from this table that five of the countries which submitted data – Austria, Finland, Iceland, Italy and Luxembourg - could fully comply with the HDP coverage definition. All other countries were missing data to some degree. However, how much (in terms of percentage of overall activity to be included) and which groups of patients were missing varied from country to country.

For example, England, Scotland and Portugal reported just under 100% compliance with the coverage definition. Activity from private hospitals was not included in their data and this accounted for approximately 5% of activity in England and 2% of activity for the other countries. France on the other hand reported that only 66% of activity defined within the HDP common data set had been supplied. No data on patients receiving rehabilitative care was available and neither was data for patients in psychiatric and geriatric hospitals available. In fact, approximately 70% of their missing data is accounted for by psychiatric day cases. This may be due to definitional issues around day case activity and outpatient activity. This definitional issue is also highlighted in the case of Denmark, where no distinction is made between day case activity and outpatient activity. Thus Danish day case activity as a percentage of total activity is very high.

Other countries reported missing data but were not able to provide an estimate of the data missing. For example, of the nine countries reporting missing private activity, five were not able to give an estimate of this missing activity as a percentage of total activity to be included in the HDP common data set.

An example of how the coverage metadata should prove useful to data users is in the area of mental health morbidity. Only eight of the countries supplying data provided data on patients in psychiatric hospitals. Thus analysis of morbidity related to mental health problems should take this into account.

Table 4.2 Summary of HDP Common Data Set Coverage – Types of patients included/excluded by country with estimated of percentage of activity covered.

Y = patients included/excluded according to HDP definition
N= patients not included/excluded according to definition (percentage provided in Table 2)
N = patients not included/excluded according to HDP definition with no estimate of percentage provided/available
N/A = Category of patient (in type of hospital) Not Applicable

Country	Patients for Inclusion in the HDP Common Data Set													Data Submitted as a Percentage of all HDP CDS Activity	Patients for Exclusion for the HDP Common Data Set		
	General Hospitals – Public				Specialist Hospitals – Public						Private Hospitals		Palliative Care in Hospitals				
					Psychiatric Hospitals		Maternity Hospitals		Geriatric Hospitals								
	In-Pat Cur.	In-Pat Rehab.	Day-Case Cur.	Day-Case Rehab.	Cur. Care	Rehab. Care	Cur. Care	Rehab. Care	Cur. Care	Rehab. Care	Cur. Care	Rehab. Care			Live-born babies	Out-Pats	Palliative Care Centres
Austria	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100	Y	Y	Y
Belgium	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Less than 99	Y	Y	Y
Denmark	Y	Y	Y	Y	N	N	N	N	Y	Y	N	N	Y	Less than 98	Y	N	Y
Finland	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100	Y	Y	Y
France	Y	N	Y	N	N	N	Y	N	N	N	Y	N	Y	66	Y	Y	Y
Germany	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	90	Y	Y	Y
Iceland	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	N/A	Y	100	Y	Y	Y
Ireland	Y	Y	Y	Y	N	N	Y	Y	Y	Y	N	N	Y	83	Y	Y	Y
Italy	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100	Y	Y	Y
Luxem-bourg	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100	Y	Y	Y
Nether-lands	Y	Y	Y	Y	N	N	N	N	N/A	N/A	N	N	Y	Less than 98	Y	Y	Y
Portugal	Y	Y	Y	Y	N	N	Y	Y	N	N	N	N	Y	98	Y	Y	Y
Sweden	Y	Y	N	N	Y*	Y*	Y*	Y*	Y*	Y*	N	N	Y	Less than 100	Y	Y	Y
UK England	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	95	Y	Y	Y
UK N. Ireland	Y	Y	Y	Y	N	N	N	N	Y	Y	N	N	Y	Less than 94.4	Y	Y	Y
UK Scotland	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	97.4	Y	Y	Y
UK Wales	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Less than 100	Y	Y	Y

*Day case data for 1999 is not available for Sweden

Another area of harmonization within the project was the unit of analysis or "what level of activity is being counted?" The national hospital activity data sets from which the data was derived count different units of activity – hospital discharges, consultant episodes, ward/ department discharges. It was agreed that the lowest common denominator was the hospital discharge and that countries which count activity below this level should aggregate their data to the hospital discharge level.

All countries which collect data below hospital discharge level, except Scotland, submitted data at the hospital discharge level. In Scotland, consultant episodes are counted and thus more than one consultant episode can be counted for each stay in hospital. In the data submitted to the HDP, Scotland estimates that on average there are 1.1 consultant episodes to one patient hospital visit. For this reason, Scottish data in its current format on the submitted CD-ROM is not comparable with data submitted by other countries and thus has not been included in the selected data analysis in Section 4 below. However, it is hoped that Scotland will resubmit their data according to the HDP unit of analysis definition at a future date.

The exercise in mapping out the coverage of the common data set proved very useful. It is probably the first time that the activity data availability from each country has been mapped out in any detail. It also provides data users with a better context in which to interpret data analysis.

But it is also an area where further work is needed in order to improve definitions and also to take into account the changing context of health care provision particularly in the move from inpatient to day case activity and day case to outpatient activity.

Section 4.3.3 Analysis of Data Items

In addition to providing data on coverage, countries supplying data were asked to provide information on non-compliance with the data item definitions in the HDP common data sets.

Countries generally complied with the definitions of the various data items. Details of the differences where countries could not comply with the agreed HDP common data set definitions have been highlighted within the metadata section on the EUHDP system and are summarised in Table 4.3 below.

The following areas of non-compliance are worth noting:

- Austria, France, Germany and Luxembourg could not define data according to type of admission (planned or not planned).

- France, England and Wales could not provide data for the 95+ age category. This data has been included in the 90-94 age category and should thus be interpreted as 90+ category.

- Sweden was not able to provide data on day cases for 1999 and thus Swedish data on the CD-Rom submitted with this report does not have day case data.

Other areas are of greater concern. The definitions for inpatient and day cases were problematic in some respects and would benefit from further development. Inpatients are those patients who are formally admitted to hospital and stay a minimum of one night but also include those inpatients who die on date of admission. Day cases are those patients who are formally admitted to hospital with the intention of discharge on the same day and where the

patient is in fact discharged on the same day. However the following problems emerged from the metadata:

Some countries - Finland, Germany, Luxembourg and Portugal – only include patients who have stayed at least one night as inpatients. Thus inpatients who die on date of admission are included as day cases. This also has a knock-on affect on the calculation of median and mean length of stay for these countries.

Denmark formally admits all patients to hospitals. This means that they do not distinguish between day case and outpatient activity. Thus Danish day case activity looks very high in comparison to other countries.

In relation to inpatients who are discharged on the same day, Denmark and Iceland give these patients a length of stay of one day. This again affects the calculation of number of bed days, mean length of stay and median length of stay. The above issues highlight the need for further development of the definitions of types of patients.

Table 4.3 Data Items included in HDP Common Data Sets, Data Item Definitions and Details of Non-Compliance with Definitions

Data Item	Definition	Comment
Year	Year of Discharge; i.e. calendar year 1 January to 31 December. For the Pilot data set, countries were asked to supply data for the calendar year 1999.	The following countries have not supplied data according to the Pilot Data definition: Austrian has supplied data for 2001; Iceland has supplied data for 1998; England has supplied data from 1 April 1999 to 31 March 2000.
Type of Admission	Planned (code 1), Not planned (code 2), Total (code 3). Countries were asked to allocate their own type of admission codes to the above coding scheme.	The following countries were not able to provide Type of Admission: Austria, France, Germany and Luxembourg. All their admissions are classified by code 3 (total admissions).
Gender	Male (code 1), Female (code 2), Total (code 3). Where Countries had a third gender category (e.g., unknown, indeterminate, not specified), these cases have been omitted.	Countries which have omitted cases because of a gender category other than male and female or gender not recorded. Belgium omitted 138 cases out of 2.65m discharges Italy excluded 43 cases out of 9.5m discharges. Sweden have omitted 1 case out of 1.5m discharges. England has omitted 0.14% of cases out of 10.7m discharges.. Scotland have omitted 5 cases out of 0.97m discharges Portugal has omitted cases out of 0.78m discharges. Germany omitted 250 cases out of 17m discharges (equivalent of 25 cases in their 10% sample). Wales has omitted 0.13% of cases out of 0.67m discharges.

Table 4.3 continued

Data Item	Definition	Comment
Age	Age of patient 1 = < 1 year 2 = 1 to 4 3 = 5 to 9 4 = 10 to 14 5 = 15 to 19 6 = 20 to 24 7 = 25 to 29 8 = 30 to 34 9 = 35 to 39 10 = 40 to 44 11 = 45 to 49 12 = 50 to 54 13 = 55 to 59 14 = 60 to 64 15 = 65 to 69 16 = 70 to 74 17 = 75 to 79 18 = 80 to 84 19 = 85 to 89 20 = 90 to 94 21 = 95+ years 22 = All ages	The following countries do not comply with the age range definitions: France, England and Wales have not provided data for the 95+ age category. These cases are included in the age range 90-94 and for these countries should be considered as a 90+ category. Countries Defining age on Date of Admission (i.e., Date of Admission minus Date of Birth): Belgium, Denmark, Finland, France, Germany*, Italy, Netherlands, UK-England, UK-Scotland, UK-Wales * In Germany only month and year of birth is collected. Therefore, age is calculated as month and year of admission minus month and year of birth. Countries Defining age on Date of Discharge (i.e., Date of Discharge minus Date of Birth): Austria, Iceland, Ireland, Luxembourg, Portugal, Sweden In Italy, 1,612 discharges either had missing data or had an incorrect age (i.e., greater than 120 years) and were excluded.
Number of In-Patients Discharges	An In-Patient is a patient who is formally admitted and stays for a minimum of one night. Patients admitted as in-patients but who do not remain overnight for some reason (e.g. death) are recorded as in-patients. Patients admitted with the intention of discharge on the same day, but who subsequently stay in hospital over night, are recorded as in-patients.	Please see Coverage file for issues surrounding which types of patients were included/excluded in each country. Finland has included only those patients who have stayed at least one night in hospital and has included all-patients who die on day of admission as day cases. Germany has only included those patients who stayed at least one night. Patients who die on the same day are included with day cases. In Iceland some day cases may be recorded as in-patients. Luxembourg categories in-patients who die on the same day as day cases. Portugal only cases with a minimum stay of 24 hours are included as in-patients.

Table 4.3 continued

Data Item	Definition	Comment
Number of Bed Days	The sum of days spent in hospital (i.e., date of discharge minus date of admission).	Denmark has given in-patients who are discharged on the same day, a length of stay one day. In Iceland an in-patient has a minimum length of stay of one day even if they are discharged on day of admission. Austria could not provide number of bed days for their procedure data.
Mean Length of Stay	Total Bed Days divided by Total Number of Discharges	All countries were able to provide data on Mean Length of Stay. Denmark has given in-patients who are discharged on the same day, a length of stay one day. In Iceland an in-patient has a minimum length of stay of one day even if they are discharged on day of admission. Austria could not provide mean length of stay for their procedure data.
Median Length of Stay	The value that splits the distribution of length of stay into two.	Austria has not provided Median Length of Stay. Netherlands has not provided Median Length of Stay. Denmark has given in-patients who are discharged on the same day, a length of stay one day. In Iceland an in-patient has a minimum length of stay of one day even if they are discharged on day of admission.
Number of Day Case Discharges	A Day Case is a patient who is formally admitted with the intention of discharging the patient on the same day, and where the patient is in fact discharged on the same day.	Denmark cannot distinguish between day-cases and out-patients as all patients are formally admitted to Danish hospitals. Thus outpatients are included in their day-case count. Finland has included all patients who died on day of admission as day cases. Germany defines day cases as all those patients who are formally admitted as in-patients but are then discharged on the same day. In Iceland, some day cases may be recorded as in-patients. Luxembourg defines day cases as all those patients who are discharged on the same day (which included in-patients who die on date of admission). Sweden was not able to provide any data on day cases.

Table 4.3 continued

Data Item	Definition	Comment
Total Discharges	Sum of the number of in-patient discharges and number of day cases discharges.	Sweden was not able to provide any data on day cases and thus their total discharges only refers to their in-patients. Danish discharges include outpatients.
Percentage Day Case	Proportion of Total Discharges with are Day Case Discharges	In Iceland, some day cases may be recorded as in-patients. Sweden was not able to provide any data on day cases.
Total Discharges Population Rate	Rate per 1,000 population. Based on Total Discharges.	Sweden was not able to provide any data on day cases. This means that the Swedish population rate is based on in-patients only. Danish discharges include outpatients.
Inpatient Discharges Population Rate	Rate per 1,000 population. Based on inpatient discharges.	
Day Case Discharges Population Rate	Rate per 1,000 population. Based on day case discharges.	Sweden was not able to provide any data on day cases. There is no day case discharge rate for Sweden. Danish day cases include outpatients.

Section 4.4 Shortlists Results

Section 4.4.1 Diagnoses Shortlist

The Diagnoses Shortlist generally worked well for most countries whether using ICD-10 or ICD-9/ICD-9-CM. Countries using ICD-10 were Austria, Denmark, Finland, France, Iceland, Luxembourg and the UK countries. Countries using ICD-9-CM were Belgium, Ireland, Italy and Portugal. Countries using ICD-9 were Germany and the Netherlands. There were a few problems for certain diagnostic codes in particular for those defined in terms of 4 digit ICD-9 as Germany only coded data at the 3 digit level and they were therefore unable to define and provide data for certain HDP diagnostic codes (see Country Specific metadata file for Germany on CD-ROM). Unfortunately there was an error in definition of Chapter 19 within ICD-9-CM, which entailed those countries using this classification having to resubmit their data. Some minor changes were carried out to the HDP shortlist by the Netherlands and Belgium.

The work carried out by the Expert Group in developing the Diagnostic shortlist was not extended to the other shortlists mainly due to lack of time and therefore it was felt that more work is necessary, in particular, in the development of a procedure shortlist to bring it up to the standard, both in comprehensiveness and content, of the Diagnostic shortlist. The latter list was considered a success by member countries, but further feedback on its usefulness will be forthcoming following its review by the WHO Collaboration Centre countries during 2003. This review by a wider number of countries may suggest a possible revision to the list and a recommendation for international use.

It should be emphasised that, however carefully constructed the shortlist is, differences between countries will still be highly influenced by variations in diagnostic, coding and recording practices. The process of arriving at fully comparable hospital inpatient data is in its early stages, and the HDP feels that the new shortlist represents a very significant advance in this direction. It provides a sound basis for broadly examining the distribution of hospital diagnoses across countries within a standard framework, which, in itself, will be invaluable for achieving future improvements in comparability.

Section 4.4.2 Procedure Shortlist

As no international procedure list was available it was necessary for countries to translate their local codes into the agreed ICD-9-CM sentinel list (comprising of 18 codes). Four countries Belgium, Ireland, Italy and Portugal use ICD-9-CM but the rest of the countries providing procedure data used a variety of procedure coding classifications. For example, the Nordic Classification of Surgical Procedures was used by Denmark, Iceland and Sweden with Finland using an adaptation of the Nordic Classification. The four UK countries used OPCS-4. Countries provided details of the mapping used to translate from their classifications to the ICD-9-CM list. It was left to countries to ensure that their mapping was as accurate as possible. Problems with the mapping or with the shortlist are noted within the metadata. Some further work is required to develop an improved procedure shortlist.

Feedback on the procedure selected list indicated that it formed a useful starting point for comparing procedure data across countries. However, two issues were highlighted in the discussion and analysis of the list. Firstly, there was no obvious logic to the list. That is, was the list designed to illustrate something specific such as the move from inpatient to day-case procedure in certain areas? One suggestion was to develop two lists at some future stage – one containing “important” (e.g., in public health terms) inpatient procedures and another list

to act as a benchmark to measure the move from inpatient to day-case procedure activity in certain areas.

A second issue identified was the difficulty in mapping the different procedure classification systems used in each country to the ICD-9-CM classification procedures. This manifested itself in two ways. Firstly, there were not necessarily corresponding codes for each procedure included in the procedure shortlist definition (e.g., the UK countries, which use the OPCS-4 classification, could not differentiate between transurethral prostatectomies and other prostatectomies as defined within the HDP procedure shortlist using ICD-9-CM). Secondly, the mapping onto ICD-9-CM was done in most countries by people, who for the most part, were not medical experts. This may have resulted in some cases in incorrect codes being included within a mapped definition and would leave some questions over the accuracy of the mapping.

These two issues clearly pointed to the need to have experts in the area of procedures and classifications (i.e., a similar group to the expert group used to define the diagnoses shortlist) involved in both the development of the list and the actual process of mapping from one classification system to another. Unfortunately the project did not have the resources to form such a group.

Section 4.4.3 External Cause Shortlist

The shortlist consisted of 9 External Causes defined in ICD-10. Cases were based on discharges with a main diagnosis falling in the ICD chapter relating to injuries, poisoning and certain other consequences of external cause (i.e. ICD-10 codes S00 to T98 or ICD-9 codes 800 to 999). If more than one external cause was coded only the first mentioned was included. Where no external cause code had been coded those discharges were coded in HDP data set as missing (code 9). Of the countries providing data on external causes (11 countries), the following countries provided data on a limited number of codes – Denmark, Iceland and Italy. These countries used their own different classifications for external cause. A number of countries mentioned that the quality of their External Cause coverage and coding was poor. Table 4.4 below presents the percentage distribution of discharges by HDP external cause category for each country included in the CD-Rom. The results show code 9 (unknowns) to be high for Belgium (73%), Iceland (82%) and Italy (60%). But other countries were also expressing their disquiet about the quality of this data item. Among those countries with a lower percentage of missing external cause coding, there is some similarity in the distribution of the discharges. Ireland and the UK countries have a similar distribution. Sweden and Finland have a similar distribution. However the distribution between these groups of countries is quite different. In addition an error had been made in the specification of the codes within chapters 1901 and 1902 of ICD-9-CM, which resulted in the resubmission of the data by some countries.

The feedback on the External Cause list indicated that more work is necessary in this area. The feedback also highlighted problems with the data quality, which would need to be addressed before all countries could supply comparable and useful data. Also, the usefulness of the data in its current format was queried. It was suggested that external cause data linked to a diagnosis might be more useful.

Table 4.4 Percentage Distribution of Discharges by HDP External Cause Category by Country

External Cause Shortlist	Belgium	Finland	Iceland	Ireland	Italy	Netherlands	Portugal	Sweden	UK-England	UK – North. Ireland	UK-Scotland	UK-Wales
1. Land transport accidents	6.63	8.16	3.35	15.06	12.67	16.10	20.74	10.31	8.02	9.97	7.33	7.32
2. Accidental falls	11.09	51.17	9.40	36.16	n/a*	35.11	35.14	54.89	32.51	34.49	36.98	30.44
3. Accidental poisoning	1.07	0.95	0.08	3.47	n/a	1.57	1.54	1.07	3.56	3.12	3.70	7.68
3. Intentional self-harm	3.66	2.72	0.34	5.98	0.38	6.70	3.42	3.64	10.40	11.81	14.66	11.40
5. Assault	0.77	1.59	0.56	5.07	0.85	1.76	1.93	1.66	4.52	5.66	6.98	4.17
6. Event of undetermined intent	0.28	0.25	0.17	0.45	n/a	0.27	0.65	0.61	0.56	1.67	0.21	0.93
7. Complications of medical and surgical care	1.80	5.09	0.53	0.65	n/a	22.69	3.80	6.84	8.65	4.06	10.81	9.52
8. Other external causes	2.24	16.16	4.00	22.24	26.95	15.80	13.10	14.17	19.92	16.52	18.10	15.89
9. External cause not known or not reported, i.e. missing	72.47	13.92	81.57	10.91	59.15	0.0	19.68	6.82	11.84	12.68	1.22	12.65

*n/a = not available

Section 4.5 Data Transformation Results

A small number of countries were not been able to produce data or had problems in generating data in the common data set format. There were also specific issues for individual countries, which resulted in partial data (e.g. diagnosis data supplied but not procedure data). Germany presented a special case since data are based on a ten percent sample of hospital inpatient discharges grossed up to provide national estimates. As this was the first time data had been collected and translated into the agreed HDP definitions some countries experienced a few "starting up" problems. For example, some countries referred to the problems they experienced producing data to the agreed diagnoses shortlist. It was however agreed that this would generally be a "one-off" problem as once the transformations had been achieved then any future work would benefit from this earlier work.

Feedback from countries show that, in the main, countries found the instruction manuals easy to understand and use. One or two countries mentioned that it would have been useful to receive the manuals in their "own" language. But generally the manuals and instructions were well received with few recommendations for changes.

Section 4.6 Software Results

Given the unavailability of HIEMS to host the hospital activity data being collected by the project, the Management Team looked to another means to compile and analyse the data. The EUHDP system developed in the Department of Health in Ireland filled this role. Feedback from the project participants highlighted three important benefits to the project as a result of the development of this software.

Firstly, the EUHDP allowed the data to be quickly compiled and validated. Data files submitted by countries were loaded on to the system and after high level validation checks, a CD-ROM with the system and data was distributed among the participants (along with an instruction manual for using the system and suggested validation exercises) for more detailed validation of the data.

This validation exercise also highlighted the second benefit of the system. It is user friendly and allows for quick and easy display and analysis of the data. Many of the project participants commented on how easy the system was to use. Also the lack of calls to the Department of Health in Dublin for seeking assistance on using the system confirms this. Comments on the software were generally very favourable, with countries finding it easy to use and enabled them not only to validate and analyse their own data, but also enabling them to compare their data with those from other countries. A large number of countries found this application very useful indeed. Detailed comments on the software were very positive and constructive and could be taken on board if the project was developed and extended into a second phase. A typical example of the type of comment on the software was to limit the number of columns on a table so that it would be possible to see the whole table without scrolling across the screen. Some countries also helpfully suggested how some of the problems could be resolved.

And following on from the above points, the third benefit of the system is that it allows for quick and easy dissemination of the data. Data can be quickly loaded on to the system and distributed on CD-ROM along with metadata files and user manuals.

The development of the EUHDP system was crucial in facilitating the project achieve its main objectives. Once the methodology for collecting comparable data had been agreed, the software facilitated not only the collection but also the validation and analysis of the data. A lot of goodwill was generated towards the project by participants as a result of being able to use and see the data so quickly after submission.

In general the validation phase was found to work quite successfully and provided countries with an opportunity to evaluate their data against data for other countries. Sadly it was not possible for countries to carry out thorough "cross-country" comparisons and evaluation as due to time constraints it was not possible to provide the metadata to accompany the data in the time available. The metadata has since been constructed and has been incorporated with the data within the revised and updated CD-ROM available to countries.

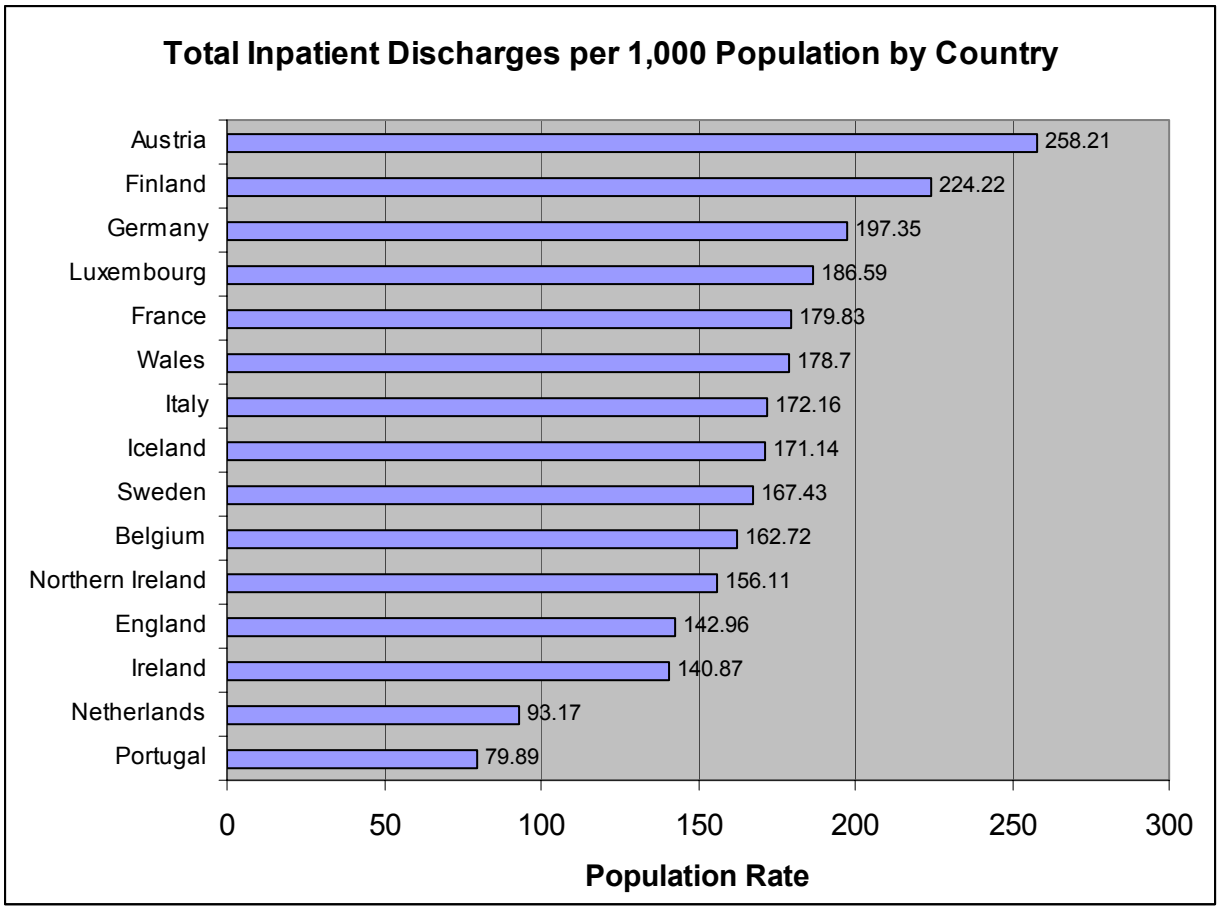
Section 4.7 Analysis of Selected Data

It is not within the scope of the HDP to undertake systematic analysis of the common data set. Indeed, the large number of records and data items means that the common data set provides scope for very extensive analysis. The fact that data are disaggregated by country, age, gender, diagnosis/procedure/external cause, and type of admission means that all combinations of these variables are available on the common data set which amounts to over 500,000 individual records. It is, however, useful for the purposes of reporting on the data set to select a limited number of analyses to demonstrate potential uses of the data as well as some of the features of the data display software. These analyses will also raise questions as to whether observed differences are true reflections of national differences in hospital utilization or whether they are artefacts of coverage, coding or definitional differences. As highlighted in Section 4.3.2 above, reference to metadata is essential in understanding potential differences between countries.

Some of the selected analyses below are based on the European Community Health Indicators (ECHI) project's phase 1 list of indicators under the heading of Health Care Utilisation. ECHI 2 will develop these indicators further and specification of performance/outcome indicators based on hospital utilisation data sources will be of particular importance. Examples have also been chosen to highlight areas where further development of the methodology is required.

Figure 4.1 below shows reported inpatient discharges by country for all causes expressed as a rate per 1,000 total population. Eleven out of the 15 countries displayed are clustered between values of approximately 140 and 195 discharges per 1,000 population. This perhaps provides some level of confidence that consistency in coverage may have been achieved for many of the participant countries. There are, however, outliers. Austria has significantly higher reported discharge rates than the other countries while Portugal is significantly lower. The metadata received from each of these countries would indicate complete coverage in the case of Austria and almost complete (98%) in the case of Portugal. Thus other explanations for these two outliers would have to be sought. Portugal consistently shows lower population rates in comparison to other countries. This would suggest lower coverage in terms of activity included in the HDP common data sets and therefore further investigation into Portuguese metadata is required. The higher levels activity in Austria may be a function of hospital usage issues in Austria or other health care system specific issues.

Figure 4.1



If the analysis above is focussed on a specific disease group it is interesting to note alterations in national rankings. Figure 4.2 below shows inpatient discharge rates for acute myocardial infarction (AMI). The majority of countries are clustered around values between 1.4 and 2.0 AMI discharges per 1,000 population. Finland retains a similar position as with total discharges. Sweden and Northern Ireland climb up the rankings and Luxembourg and France drop to the bottom of the table.

Some of the variance is undoubtedly due to differing population age structures and thus the use of age standardised rates would be another potential area of further development for the system.

Figure 4.2

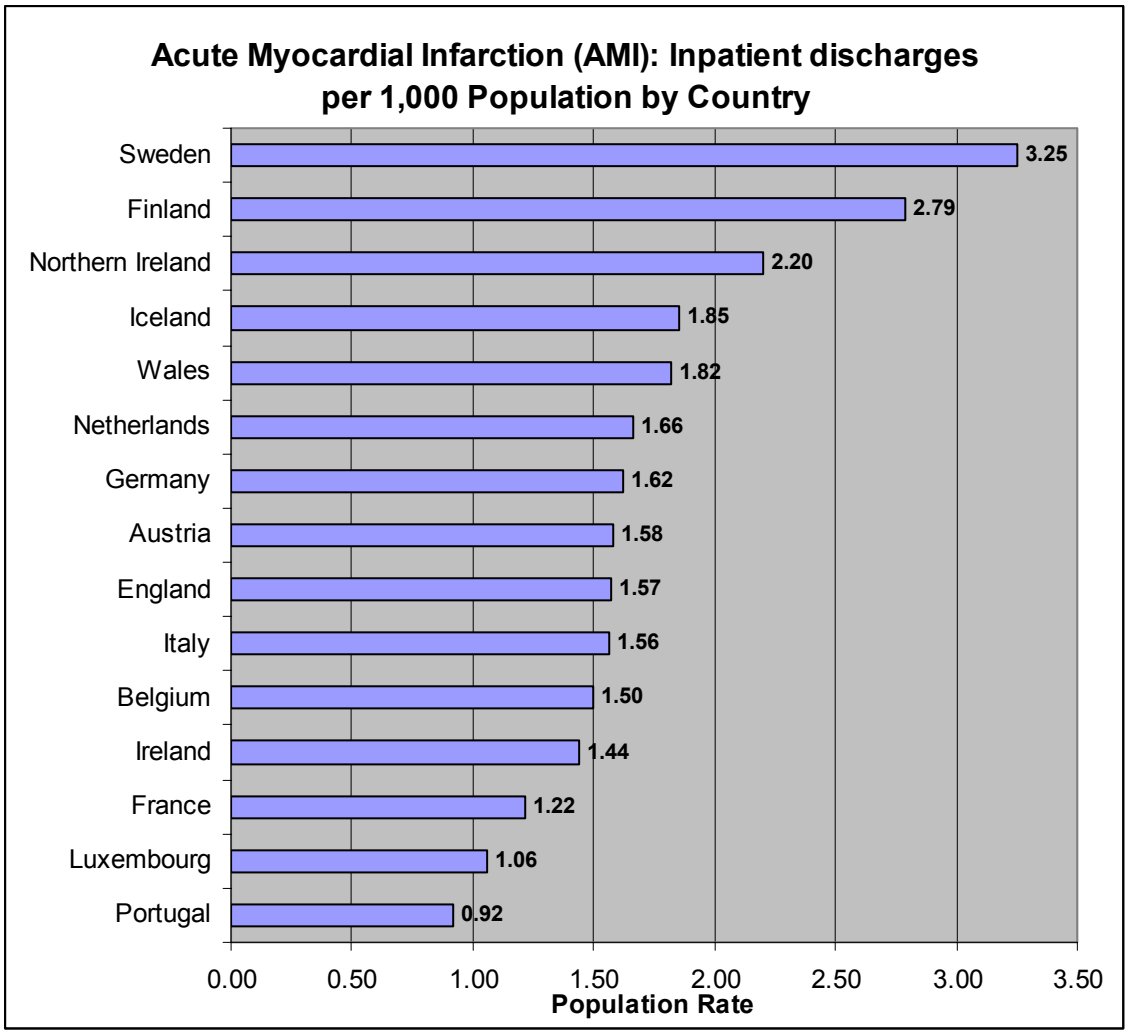


Figure 4.3 and 4.4 present mean length of stay for all hip replacement discharges (total and partial) by country. Figure 4.3 demonstrates a special feature of the EUHDP software which allows geographical representation of an indicator across Europe. There is quite a variation in the average length of stay of patients undergoing a hip replacement with patients in Belgium staying on average 100% longer than patients in the Nordic countries and Northern Ireland. This variation may be more a feature of different health care systems where patients in countries with a lower length of stay are moved out of the acute care setting to a convalescent setting.

Figure 4.3: Mean Length of Stay for Hip Replacements

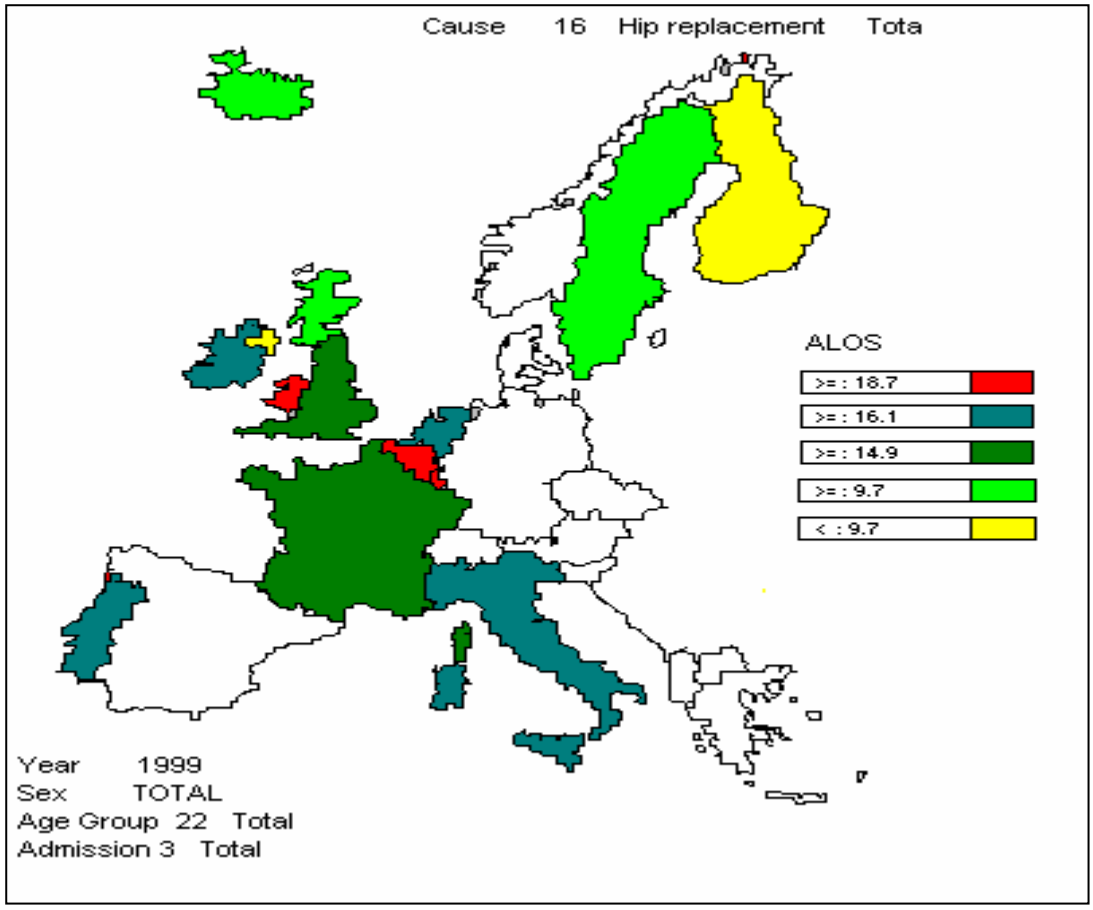
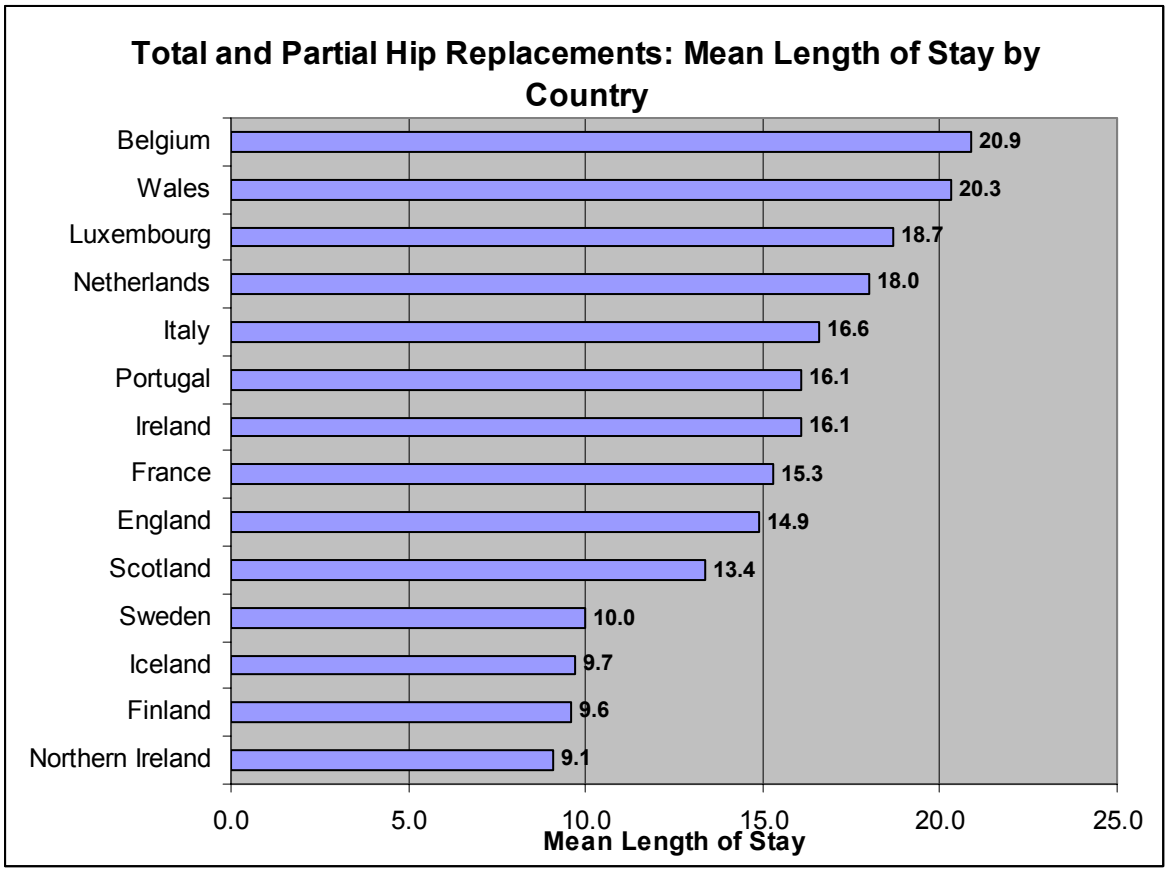
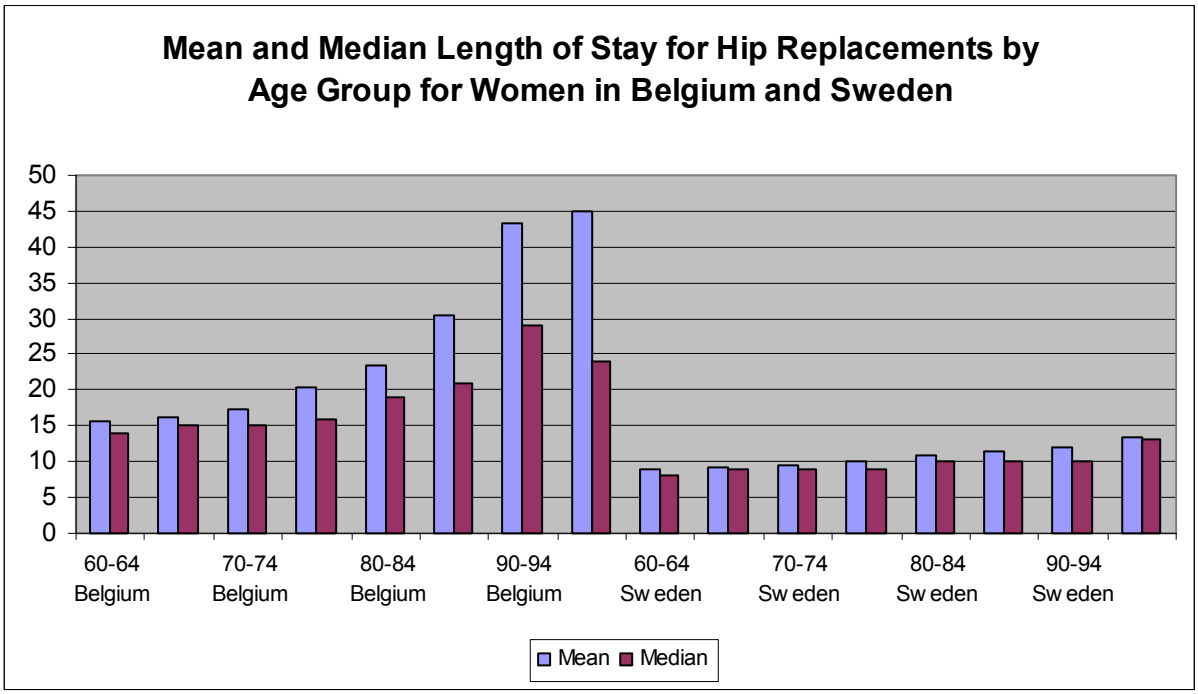


Figure 4.4



A look at specific age groups for women in Belgium and Sweden (see figure 4.5 below) indicates that the overall mean length of stay in both countries is broadly reflective of the pattern of length of stay in these countries. In Belgium, some outliers in the older age group may be dragging up the average but the median length of stay indicates that on average, patients in Belgium stay longer in hospital for hip replacements compared to patients in Sweden.

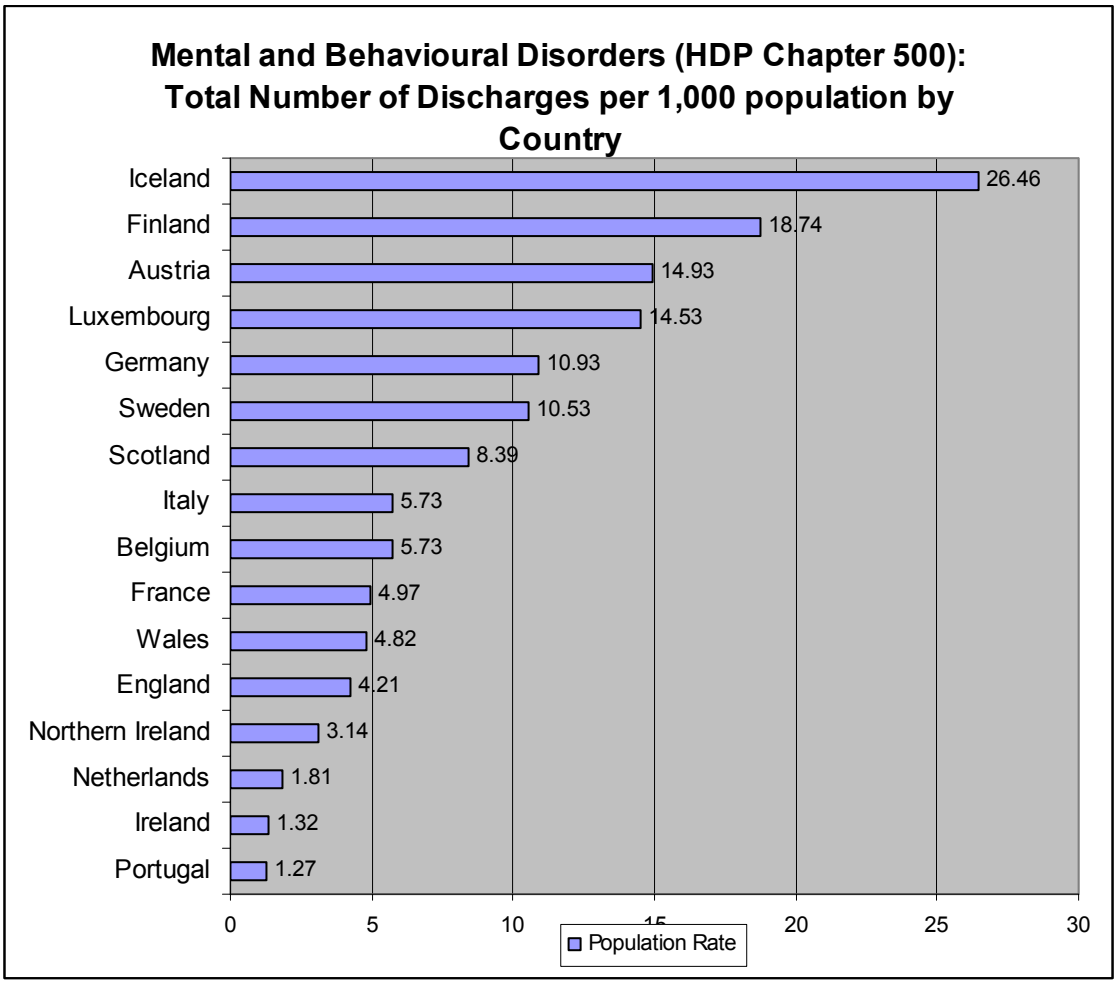
Figure 4.5



In Section 4.3.2 which examined the coverage of the common data set, some potentially problematic areas were highlighted.

For example, it was noted that the not all countries include psychiatric patients in their hospital data sets. Figure 4.6 presents population rates for total discharges with a principal diagnosis of mental and behavioural disorders (HDP Code 500). The four countries with the lowest population rates are, as expected, countries which have not supplied data from specialist psychiatric hospitals (see section 4.3.2 on coverage or metadata files on the EUHDP system). The countries reporting the highest population rates are countries with 100% coverage. This example clearly illustrates the importance of referring to the metadata when interpreting data.

Figure 4.6



Section 4.4.2 considered the procedure shortlist used for the HDP common data set on procedures. One area of potential use for such data is the benchmarking of certain procedures as they move from inpatient procedures to day case procedures. Operations for cataracts are an example and are presented in Table 4.5. Countries are ordered by the percentage of these operations that are performed as day cases. This percentage varies from 77.41 percent in England to 0.06 percent in Portugal (no data on day cases are available for Sweden for 1999). In order for such benchmarking to have maximum value, time series data would have to be collected to mark the shift from inpatient to day case across countries over time.

Table 4.5 Operations for Cataracts: Percentage of Total Operations Performed as Day Cases by Country

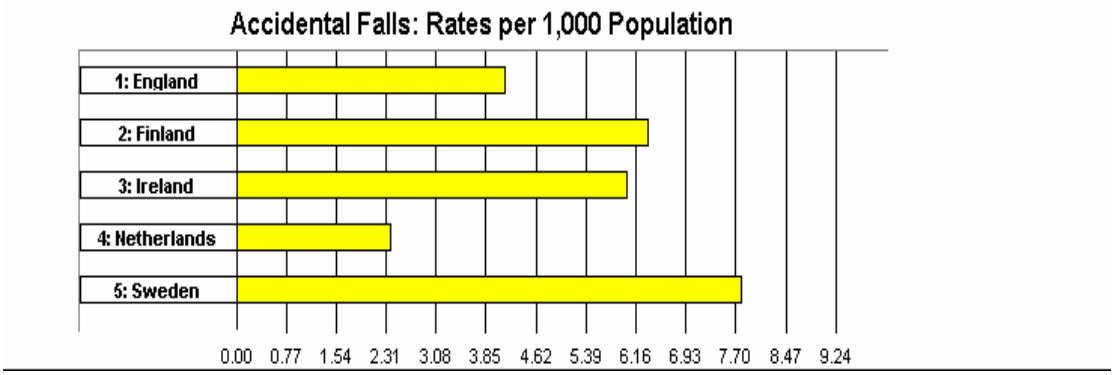
Country	Percentage Day Case
England	77.41
Iceland	76.08
Finland	74.65
Netherlands	74.45
Northern Ireland	72.70
Belgium	63.98
Scotland	63.40
Wales	53.57
Ireland	30.07
France	27.32
Italy	27.32
Luxembourg	03.59
Austria	00.80
Portugal	00.06

Note: Sweden was not able to provide day case data for 1999.

Section 4.4.3 above highlighted the difficulties with the external cause data collected. Specifically it highlighted the fact that not all countries collect data on external cause and of those that do, about half have very low coverage of this data.

Figure 4.7 below presents all discharges with an external cause of accidental fall for England, Finland, Ireland, Netherlands and Sweden. These countries were selected because of low percentage of missing external cause data reported. Finland and Sweden report the highest population rates. Netherlands has a much lower rate than the other countries.

Figure 4.7



From the above examples, it is clear that the HDP diagnoses, selected procedures and external cause data provide the first step towards developing comparable data sets in these areas across Europe.

Areas of further development are still required and the data as it stands must be interpreted in conjunction with the metadata.

Section 4.8 Confidentiality and Data Dissemination

It was agreed that as the data within the CDS was aggregated, it did not pose as much of a problem as individual data with respect to confidentiality issues. The use of the data – i.e., who should have access? - were discussed at the last Full Group meeting. It was agreed that ideally data should be used as widely as possible as this was seen as the means to ensure improvement in data quality. However, it was felt that as the data was still at a pilot stage it should be limited to use by the project participants and could not be published and/or disseminated without the explicit permission of the data owners in each country. In addition, the software accompanying the data within the CD-ROM should display clear health warnings to users. This would hopefully avoid misuse and misreporting of the data especially by those unfamiliar with the data within the CDS.

Section 5
Conclusions and Recommendations

Project participants provided opinions on the project's results and on recommendations for further work through formal feedback forms and through discussion at Full Group meetings. The clear consensus was that the HDP had, if anything, exceeded expectations in achieving its aims but that the results could only be considered as a first step. Many issues remained to be addressed.

Experience in the past, particularly for those involved in ENS-Care a decade ago, was of progress being made but not sustained. The group was of the strong opinion that the worst result would be to lose the momentum of the existing work and to have to begin the whole process again at some later stage. This discontinuity would mean that the essential groundwork undertaken by the HDP would have to be at least partially repeated, that the current network of experts in the field would have to be reformed, and that resources would inevitably be wasted in having to restart the process.

If the work were to be continued, the Full Group identified a range of areas for further development:

1. Production of time series data.
2. Extension to accession countries.
3. Development of common procedure list.
4. Improved validation.
5. Continued revision and enhancement of coverage issues (in conjunction with work of OECD and EUCOMP2).
6. Inclusion of additional analysis variables (e.g. patient mobility, sub-national data, DRGs etc.).
7. Inclusion of additional patient types (e.g. outpatients).
8. Development of performance/outcome indicators (e.g. quality of care, readmission, sentinel measures etc. - in conjunction with ECHI2 recommendations).
9. Investigate potential variation in national coding/classification rules.
10. Work on data analysis.
11. Extend method to infrastructural indicators such as hospital beds.
12. Further develop EUHDP software.

At the final Full Group meeting, participants were asked to prioritise these items by selecting the three areas they considered most important for future development. The extension of the HDP to accession countries was taken as a given. The following items received the most votes:

- 1. Production of time series data.
- 6. and 7. These were taken together under the heading 'Increase scope of data.'
- 3. Development of common procedure list.
- 10. Work on data analysis.

Taken together, the HDP recommends that the methodology developed and implemented on a pilot basis by the project be accepted as providing a practical way forward in the improved comparability and availability of raw aggregate hospital activity data for the EU. The project also recommends that the work be progressed on this basis with priority given to the four bulleted items listed above. It should also be noted that the project has agreed to the limited use of existing data by participants under the conditions set out in Section 4.8 above.

Achieving comparability of hospital activity data between the countries of Europe presents many challenges. It is the view of the project team and all participants in the Hospital Data Project that a successful start has been made towards addressing those challenges. Most importantly, the creation of a network of national experts in the field and the development of a robust methodology provide the tools for further improvement. The fact that the HDP has progressed beyond method to data production, validation and dissemination at raw aggregated level demonstrates the viability of the approach. Furthermore, the availability of pilot data on a platform which facilitates its interrogation allows for the progressive refinement and testing of the approach. The inclusion of detailed metadata in turn means that the data can be used and interpreted albeit with caution.

The World Health Organisation provided support for the project, its achievements so far and for its continuation. The project team, including the WHO, were of the view that results of the project, particularly the shortlist of diagnoses, will likely have significant implications beyond the EU. It also may facilitate the adoption of a standard hospital discharge data-reporting format for the use by various international organisations and other users of the data (e.g. like the one currently used by the WHO and EUROSTAT for mortality data collection). This will help to harmonise the hospital discharge data currently being collected at least by EUROSTAT, WHO and OECD and will remove the unnecessary burden from countries caused by reporting of the same data in different formats to different international agencies. However, the final common data reporting format and specifications should be developed and agreed upon by corresponding international agencies active in the health data collection.

The Hospital Data Project should therefore be seen as the beginning of a process where the results of the first stage inform and guide further work. The direction which future phases should take must be informed by the practical value at EU, national and international levels which the data can demonstrate. In particular, it must contribute added value to the aims and objectives of the Public Health Programme (2003-2008) and it must work towards more routine data collection and dissemination through the implementation of the EU public health information network (EUPHIN).

Annex 1

Project Participants

Country	Name	Organisation
Austria	Herta Rack	Bundesministerium fur Gesundheit und Frauen
Belgium	Chrisiane Hauzeur	Ministry of Public Health
Denmark	Mads Hansen	Ministry of Interior and Health
Finland	Olli Nylander	STAKES (National Research and Development Centre for Welfare and Health), Finland
France	Gerard Bedeyan Marie-Claude Mouquet	Haute comite de la sante publique Ministere de l'Emploi et de la Solidarite
Germany	Christiane Rosenow	Statistiches Bundesamt
Greece	Aris Sissouras	Institute of Social Policy
Iceland	Gudrun Gudfinnsdottir	Directorate of Health, Statistics Iceland
Ireland **Project Co-Ordinator**	Hugh Magee	Department of Health and Children
Italy	Carla Ceccolini	Ministry of Health
Luxembourg	Jean-Paul Juchem	Union des caisses de maladie
Netherlands	Fons Blankendaal	Prismant
Portugal	Jose Giria	Direcao-Geral da Saude
Spain	Jose Garcia Rey	Ministerio de Sanidad y Consumo
Sweden	Curt-Lennart Spetz	National Board of Health and Welfare
UK **Project Management Team**	Richard Willmer	Department of Health
Project Manager	Valerie Tyler	UK
Project Administrator	Ciara O'Shea	Department of Health and Children, Ireland
WHO	Arun Nanda Remigijus Prochorskas	WHO-Europe, Denmark
EU Commission	Ole Henkriksen	DG-Sanco, Luxembourg
Software Development	Patrick Lynch	Department of Health and Children, Ireland
Data Compilation	Sheelagh Bonham Grainne Cosgrove	Department of Health and Children, Ireland
Project Management Team	Nicola Fortune	Australian Institute of Health and Welfare – on secondment to the Department of Health

ANNEX 2

INVENTORY OF NATIONAL HOSPITAL ACTIVITY DATA SETS

Comparison of information on hospital data collections for EU Member States

Coverage—patients

Country	*Patients included*	*Classes of patients distinguishable*
Austria	Admissions defined as any patient occupying hospital bed, excluding certain types of beds e.g. dialysis beds, baby cots, etc.	Inpatients (those who stay overnight) Day-patients (date of admission=date of discharge)
Belgium	Inpatients, day patients, long stay (>=6mths), full psychiatric stay. Only administrative data are collected for patients in psychiatric units in general hospitals as data for psychiatric patients are included with data for patients within large psychiatric hospitals (special registration RPM)	Each category is separately identifiable, except for psychiatric patients.
Denmark	Both patients who stay overnight and those who do not are covered.	In-patients and day-cases can be identified separated. However, day-cases also include out-patients (who are also formally admitted to hospital).
United Kingdom of which -		
England	All patients using a hospital bed in NHS hospitals, including private patients.	Ordinary admissions, day cases and mothers and babies using delivery facilities only.
Northern Ireland	All patients using a hospital bed in NHS hospitals, including private patients.	Ordinary admissions, day cases, regular day admissions, regular night admissions, mothers and babies only using delivery facilities.
Scotland	All inpatients plus first and significant outpatient episodes (definitions of inpatient, day patient and outpatient given in data manual)	Inpatients and day cases are distinguishable from outpatients using SMR record type (M). (Data item 'management of patient' (M) seems to allow day patients to be distinguished from inpatients)
Wales	All patients using a hospital bed in Welsh Trusts and Welsh residences treated in English trusts including private patients	Ordinary Admissions, day cases, regular day and night attendances, maternity mothers and well babies.

Coverage—patients (continued)

Country	*Patients included*	*Classes of patients distinguishable*
Finland	Inpatients and day surgery patients (list of diagnoses(?)). Day-surgery covers patients who attend for an elective procedure, where patient comes and leaves hospital within the same day and is not transferred to another health care institution.	These two types of patients are separated nationally; so called 'core day-surgery' is identified with a special list of procedures suitable for day-surgery. **Question: is this the only means of identifying day cases; i.e. they are not recorded as a separate administrative category?** **Clinically** – each hospital defines what is day-surgery and what is in-patient surgery **In national data collection** – day-surgery is marked with a special code 'service branch 2' **In national reporting** – elective procedures performed within one day and belonging to the list of core day-surgery operations is reported (episodes, where patient is moved to another hospital after operation are removed).
France	Patients staying less than one night and those staying at least 24 hours, and those staying for sessions of dialysis, chemotherapy or radiotherapy (i.e. includes day patients and outpatients?)	Outpatients are not included within the database. Yes each patient type can be separately identified.
Germany	In the diagnosis statistics and the basic hospital statistics: Incoming patients with an admission as an inpatient are counted. This includes patients staying for a few hours (if they have an admission as an inpatient). Excluded are outpatients and healthy new-borns.	In the basic hospital statistics: Inpatients can be further distinguished (if the criterion applies) into 1. those who had been inpatients in other hospitals and had then been transferred into the reporting hospital and 2. patients who were admitted and discharged/died on the same day.
Greece	Patients staying overnight only. No records are kept for patients who do not stay overnight.	

Coverage—patients (continued)

Country	*Patients included*	*Classes of patients distinguishable*
Iceland	Inpatients and day patients. Excluding ambulatory care, A&E and healthy newborns.	Inpatients / day patients distinguishable by units where services are provided. **So if you were asked to provide data separately for inpatients (i.e. patients staying overnight) and day patients this could be done?** Day patients can usually be distinguished from inpatients by the unit to which they are admitted. In the main hospitals the day care part, even within inpatient units, is given a separate administrative unit number. In those cases where no separate registration exists, the distinction can be made by looking at date of admission/date of discharge.
Ireland	95% of inpatients and day patients. Includes all public and private inpatients and day cases discharged from publicly funded acute hospitals. Does not include wholly private hospitals.	In-patients Day cases
Italy	All patients with a formal admission and discharges. Newborn babies are included.	1) Inpatients, who stay at least one night, and day cases. Treatment care for day cases may last either only one day or more days for a cycle of treatments. 2) Kind of admission: planned admission, urgent admission, compulsory admission. 3) Discharges for Acute care, rehabilitation and long stay. For each single record, giving information about a single patient, it is specified about the kind of admission 1. ordinary stay, that means to stay overnight 2. day case Using this code (1 or 2) it is possible to identify these two different types of patients.
Luxembourg	Inpatients, day-patients and outpatients under coverage of social security (98% of patient days)	Each category can be identified. Inpatients are patients who stay overnight, day patients occupy a bed but do not stay overnight and outpatients do not occupy a bed at all.
Netherlands	Admissions defined as any patient occupying hospital bed	Inpatients (those who stay overnight) and Day-patients - can be identified separately

Coverage—patients (continued)

Country	*Patients included*	*Classes of patients distinguishable*
Portugal	Inpatients—i.e. those who stay overnight. For inpatient classification is necessary to use a bed and stay overnight.	Also collect data on outpatients—number of consultations per year. Data on outpatients are aggregated data.
Spain		
Sweden	All inpatients; whether a patient is designated an in-patient is decided by the physician.	Can distinguish day cases using date of admission = date of discharge Day care in Sweden is defined as part of outpatient care. Thus only persons that die or for some reason are moved from the department will be included. Day patients by definition in Sweden are outpatients. As we don't collect data on outpatients; they are not included in the statistics. Inpatients who don't stay over night probably were supposed to stay longer when admitted but died or were for some reason sent home or transferred to some other department.

Coverage—hospitals

Country	*Definition of hospitals*	*Classes of hospital included*
Austria	Defined in Federal Hospital Act (see definition enclosed)	Include general (public or private) and academic (university) hospitals, specialised hospitals (incl. psychiatric hospitals and rehabilitation centres), convalescent centres, homes for chronically ill patients, maternity homes and sanatoriums
Belgium	Defined in the law on hospitals of 7 August 1987.	General (public or private) and academic (university) hospitals. There is a separate data collection for psychiatric hospitals (R.P.M.).
Denmark	Nursing homes not included.	Public hospitals, plus most private hospitals from 2001
United Kingdom of which -		
England	No definition	NHS hospitals only—private hospitals excluded.
Northern Ireland	No definition	Health Service hospitals only – private hospitals excluded

Coverage—hospitals (continued)

Country	*Definition of hospitals*	*Classes of hospital included*
Scotland	'A hospital is an institution which is managed, staffed and equipped for the provision of health care services. Hospitals comprise facilities for the diagnosis and treatment of disease.' (not sure where this definition comes from)	NHS hospitals (also contracted NHS beds in non-NHS institutions)
Wales	Welsh definition is ' A hospital is an institution which is managed, staffed and equipped for the provision of Health Care services. This includes both diagnostic and therapeutic treatment of diseases, symptoms and procedures.	NHS hospitals and private hospitals providing NHS contracts only.
Finland	We follow the national definition, but it is not so official.	Includes hospitals of hospital districts (university hospitals, central hospitals and regional hospitals), health centre hospitals, private hospitals and special hospitals. Still there are some psychiatric hospitals, but mostly they are integrated into other hospitals. At present the distinction between different types of public hospitals is becoming more obscure. We speak mainly about hospitals of hospital districts and health centre hospitals.
France	Defined in legislation (Public Health Code): 1): hospitals defined as health establishments providing 'short-term care or concerning serious conditions during their acute phase in medicine, surgery, obstetrics, odontology or psychiatry' with or without accommodation:	Public and private hospitals
Germany	Hospitals are defined in § 107 Abs. 1 Sozialgesetzbuch V (SGB V) (Also data for rehabilitation centres, which are defined in § 107 Abs. 2 SGB V) All hospitals except hospitals in prisons (penal system?) and police hospitals Data is collected for each hospital that is an economical unit.	Hospital types: General hospitals (have beds for inpatients in different departments which are not only for psychiatrical and neurological patients). Other hospitals (hospitals with beds only for psychiatrical or psychiatrical and neurological patients and hospitals for day or night care only). Hospitals of the Federal Armed Forces.
Greece	Hospitals are defined as General and Special (psychiatric etc.). No other definition is applied.	Both private & public hospitals are included. Hospitals are defined by hospital type.

Coverage—hospitals (continued)

Country	*Definition of hospitals*	*Classes of hospital included*
Iceland	Defined in the law on health services nr. 97 from 1990. Hospitals are divided into 8 categories according to their function and level of care.	Acute care hospitals. All hospitals are public institutions. Hospitals in Iceland are placed into 8 categories in the Icelandic law on health services. However, this law has become obsolete and the categories are not used for reporting on the hospitals, i.e. for statistical purposes. A revision of the law on health services is under way; however, this work is progressing very slowly. For statistical purposes, hospitals in Iceland can be divided into 3 main types. These are: -Specialty hospitals - high-tech hospitals with intensive care units, lab facilities and supportive services. -General hospitals - specialty care, however at a lower level. -Local hospitals - mainly long term care, provided by primary care physicians, in conjunction with primary health care centres. Besides these three categories of hospitals there are other facilities: -Rehabilitation centres -Detoxification centres -Nursing homes and residential care for the elderly.
Ireland	Hospital bed defined as one into which a patient has been admitted by a consultant and which has been designated by the Minister for Health.	Publicly funded acute hospitals, plus two private hospitals; expect to collect data from all private hospitals within next few years.
Italy	Public and private hospitals Hospitals are classified according to ICHA-HP Classification of providers of health (OECD).	Public and private hospitals, except residential centres with prevalent social care functions and those centres for low intensive rehabilitative care.
Luxembourg	Defined in the law on hospitals of 28 August 1998 and further specified in the national hospital plan	General hospitals, proximity hospitals (those with less than 175 beds) and specialized hospitals incl. cardiac surgery, radiotherapy, maternity, psychiatry and rehabilitation
Netherlands	Defined by law (‘AWBZ’)	Include general (public) and academic (university) hospitals, including private hospital
Portugal	International definition on hospitals Hospital is defined as a place with beds and ambulatory services, for medical treatment. The patient can only admitted by a doctor. I think that our definition is looking like the WHO definition.	Public sector; don’t include psychiatric hospitals.
Sweden	No definition of hospital available	Public hospitals University hospitals, county hospitals and community hospitals are included. Most of them are general hospitals, some are psychiatric and very few are specialised with only one somatic specialty.

Nature of collection (individualised or aggregate records)

Country	
Austria	Individualised
Belgium	Individualised
Denmark	Individualised
United Kingdom of which -	
England	Individualised
Northern Ireland	Individualised
Scotland	Individualised
Wales	Individualised
Finland	Individualised
France	Individualised
Germany	Individualised, one data set for each hospital (data about 1. basic information of hospitals and 2. Costs of hospitals) per year and one data set for each inpatient (3. Diagnosis data). The basic and costs hospital data is sent to the National Statistical Office (Statistisches Bundesamt) aggregated. (the same as in Greece!). Diagnosis data is sent aggregated too, but we also have a 10% sample (every tenth data set of each hospital).
Greece	Individualised, but sent to the Central Statistical Office aggregated.
Iceland	Individualised
Ireland	Individualised
Italy	Individualised
Luxembourg	Individualised
Netherlands	Individualised
Portugal	Individualised, except for outpatients which is aggregate data.
Spain	
Sweden	Individualised

Nature of individual unit/record around which collection is framed

Country	
Austria	'Discharge statistics': Basically a discharge is counted, when a patient leaves the hospital. But a discharge and fresh admission is also recorded, when a patient is transferred within the same hospital between acute care and the certain special units (rehabilitation, nursing care, psychiatric day/night clinic) or when social insurance coverage is expired. Therefore multiple records per one hospital stay may occur in certain cases. It is not possible to link together multiple records that relate to a single hospital stay for a patient. In Austria we do not have an unique patient number (like patient-identification), we have only admission code (it is a number). This means each admission has his own admission-code (number). So in the case of multiple records one patient will have two or three or more admission-codes (numbers).
Belgium	Discharges, recorded when the patient leaves the hospital (a set of records per hospital stay). (A discharge is counted when a patient leaves the hospital. But we do have information on moves between wards/units as an element of the hospital stay administrative data.)
Denmark	Discharges—a discharge is registered when a patient is discharged from a department
United Kingdom of which -	
England	Consultant episode—a period of continuous in-patient treatment under the care of a specific consultant. If a patient is transferred from one consultant to another, a new Consultant Episode commences (i.e. a new record in the database).
Northern Ireland	Consultant episode—a period of continuous in-patient treatment under the care of a specific consultant. If a patient is transferred from one consultant to another, a new Consultant Episode commences (i.e. a new record in the database).
Scotland	Discharges. An inpatient discharge marks the end of an inpatient episode. A new SMR (i.e. a new episode) is generated when a patient changes specialty (with or without a change of consultant), changes consultant within a specialty, or moves to a different 'significant facility' within the hospital.
Wales	Finished Consultant Episodes- a period of continuous in-patient treatment under the care of a specific consultant. If a patient is transferred from one consultant to another, a new Consultant Episode commences (i.e. a new record in the database). Specialty or ward changes during a spell of care do not trigger an new episode.
Finland	Discharges—a discharge is registered when a patient leaves hospital or moves from one main speciality to another (a move from one department or unit to another is not recorded as a discharge). Also analyse 'disease episodes', composed of several hospital stays in different hospitals and visits at out-patient clinics caused by the same DRG-grouped problem.
France	Hospital stays—even if the patient has been in several medical units during their stay without leaving the hospital this constitutes a single stay.

Nature of individual unit/record around which collection is framed (continued)

Country	
Germany	In diagnosis statistic: discharges — a discharge is registered when a patient leaves hospital. A fresh admission is recorded if the same patient comes into the hospital (in the recording year) again. We are not able to link the data sets (no identifier). If a person is regularly treated as an outpatient (i.e. dialysis or regular day care), he will be discharged every quarter and there will be a fresh admission after that.
Greece	The measurement unit of analysis is discharges. Discharge is counted when a patient finally leaves hospital The inter-departmental movements are not counted at present but are planned for the new system of registration.
Iceland	A discharge and fresh admission is recorded when a patient is transferred between departments (codes for source of admission and destination on discharge allow patient to be tracked through the system).
Ireland	Discharges—a discharge is only counted when the patient actually leaves hospital. One record per hospital stay or episode.
Italy	Each discharge is recorded. The patient is discharged in the following cases: 1. Death of the patient; 2. Patient is allowed to go back home (inpatient) or the cycle of treatment is finished (day case); 3. Patient is transferred to a nursing home; 4. Patient is allowed to go back home but with home care services; 5. Patient decides to leave the hospital (or interrupts the cycle of treatment) without doctors' approval; 6. Patient is transferred to another hospital for acute care; 7. Inpatient becomes day case or vice versa or when the kind of general treatment changes (acute care, rehabilitation and long stay). 8. Patient is transferred to another hospital for rehabilitative care; 9. Other. If the patient changes "kind of admission" (ordinary stay or day case) or "kind of treatment" (acute care, rehabilitation and long stay) there will be more records related to the same person. For each discharge is recorded where the patient comes from
Luxembourg	Discharges-a discharge is counted when the patient leaves the hospital. Moves between units or wards are not recorded. A temporary leave (ex: a psychiatric patient returning home at weekend) is not counted as a discharge. For outpatients, passages or sessions are recorded.
Netherlands	Discharges from hospital; we are able to distinguish consultant episodes
Portugal	Discharges—a discharge is only counted when the patient actually leaves hospital. This means one record per hospital stay.
Spain	
Sweden	A discharge and fresh admission is recorded when a patient is transferred between departments (codes for source of admission and destination on discharge allow patient to be tracked through the system)

Record linkage capabilities

Country	
Austria	A unique admission code is assigned to each new inpatient and is intended to remain with that patient for several years, so hospitals are in the position to draw up an individual "case history". The identification of inpatients via admission codes can only be done at the hospital level and therefore this facility is not available centrally.
Belgium	An anonymous patient number is assigned by the hospital and is intended to remain with that patient for the year, and hopefully also for following years.
Denmark	
United Kingdom of which -	
England	Records relating to the same patient are not permanently linked, but there are techniques for linking records to conduct analysis on the basis of hospital spells or, to a lesser extent, patients.
Northern Ireland	Records relating to the same patient are not permanently linked, but there are techniques for linking records to conduct analysis on the basis of hospital spells or, to a lesser extent, patients
Scotland	They use a probabilistic method to link records into FCEs (for comparability with FCEs in England), inpatient stays, and hospital stays (spells). They have a system for generating unique hospital patient identifiers that goes back 20 years.
Wales	Records relating to the same patient are not permanently linked, but there are techniques for linking records to conduct analysis on the basis of hospital spells or, to a lesser extent, patients. NHS Number is used to create Trust based spells for FCE occurring across two hospital sites.
Finland	Record linkage via patient's 'personal identification number' (PIN), which is assigned at birth (it is used in various sectors of life, not just health care).
France	The PMSI for patients admitted after 31 December 2000 will include an automatic creation of an anonymous number from personal details such as the social security number, his/her date of birth and sex.
Germany	Linkage of patients is not possible at all. There is no unique identifier! We can only group cases who have been in the same hospital (unique hospital number).
Greece	No, every hospital has a patient id record linkage can only be achieved manually by name, address etc.

Record linkage capabilities (continued)

Country	
Iceland	An official 10-digit personal identification number is used by hospital. This number is coded before data is collected by health authorities. Still allows tracking of patients through the system. Each person is assigned a 10-digit personal identification number at birth by Statistics Iceland. This is subsequently used to identify this person on all public records and where ever identity needs to be determined. The number is comprised of the person's birthday and year, followed by a slash and four numbers, the first 3 of these 4 are random but the last indicates the century one is born in. These numbers are used to identify patients in the hospitals. When we receive the data this number has been scrambled so that we are unable to identify the person. However, this is done in a consistent manner so that we can trace the individual through the system although we cannot tell who this individual is. Normally the first 6 digits are used to figure out people's age and their age is not recorded separately in patient records. However, given that the data is scrambled when we receive it we are also provided with the individual's age upon discharge.
Ireland	Record linkage is not possible. The name of the patient is collected by the hospital but is not returned to the Department of Health. However, it is possible to trace a patient within a hospital as they will maintain the same hospital ID number but it is not possible to trace a patient between hospitals.
Italy	Since 2001 each discharge has been recorded with one's individual code. Using this code it is possible to keep trace of the patient for eventual further admissions in hospital. The individual code is not given in case of newborn babies and clandestine immigrate.
Luxembourg	Linkage via unique personal identification number assigned at national level
Netherlands	Unique patient number: 5d. hospital number plus 10d. admission number
Portugal	Each patient has a 13-digit personal identification number, but this identification number is not national; Each hospital has his proper collection of identification numbers; Records relating to the same patient are not permanently linked, but with the 13-digit personal identification number we can link the records, but not at national level.
Spain	
Sweden	Each patient has a 12-digit personal identification number, that is used also in a lot of other databases.

Basic statistical units capable of being analysed

Country	
Austria	Discharges
Belgium	Discharges
Denmark	Discharges
United Kingdom of which -	
England	Consultant episodes; Admissions; Discharges
Northern Ireland	Consultant episodes; Admissions; Discharges
Scotland	Individual discharges/inpatient episodes; FCEs (English definition); inpatient stays; hospital stays
Wales	Finished Consultant episodes, Midwifery Episodes, Hospital Spells, Trust Spells, Admissions, Discharges
Finland	Discharges (registered when a patient leaves hospital or moves from one main speciality to another); 'disease episodes' (composed of several hospital stays in different hospitals and visits at out-patient clinics caused by the same DRG-grouped problem).
France	Hospital stays
Germany	Discharges
Greece	Discharges
Iceland	Discharges
Ireland	Discharges
Italy	Discharges
Luxembourg	Analysis can be performed by hospital entities (nursing units, Op, Rx, lab, …) and by clinical episodes. A clinical episode is built around a discharge.
Netherlands	Discharges
Portugal	Discharges
Spain	
Sweden	Discharges

Frequency and timeliness

Country	*Data cycle*	*Availability/timeliness*
Austria	Data collected continuously	Data to be delivered by end March for previous calendar year.
Belgium	Annual –Calendar year.	Aim to publish data within a year of the end of the data year.
Denmark	Data are updated monthly but published annually (by calendar year)	Annual data available about 11 months after the end of the year to which they relate.
United Kingdom of which -		
England	Data year (1 April–31 March)	Quarterly data available 10 weeks after end of quarter; Annual data available 8 months after year end.
Northern Ireland	Data year (1April-31March) Data collected monthly	Annual data available approx 4 months after year end. Provisional data available at any point throughout the year
Scotland	Continuous. It is possible to analyse the data on the basis of financial years, calendar years, quarters, etc.	Data are generally available for analysis 3–4 months after the period to which they relate.
Wales	Monthly Collections- Data year (April to March)	Annual Data complete by third month after year end. Monthly Data three weeks after month end
Finland	Calendar year, updated yearly.	Data available within five months of end of calendar year
France	Annual **Is this calendar year?** Calendar Years.	Available for analysis 15 months after the end of the year to which they relate.
Germany	Calendar Year	Basic hospital data is published (and then open to specific analysis) about 11 month after the end of the year to which it is related. Costs of hospitals is published (and then open to specific analysis) about 12 month after the end of the year to which it is related. Diagnosis data of patients is published (and then open to specific analysis) about 18 month after the end of the year to which it is related.
Greece	Information is collected annually.	Data is available two years after year of discharge (e.g., data for 1999 is available in 2001). Year in data set refers to date of discharge and not date of admission. Data will soon be available on a quarterly basis.
Iceland	Calendar year	Long delays (>24 months) in data becoming available. Steps being taken to improve this.

Frequency and timeliness (continued)

Country	*Data cycle*	*Availability/timeliness*
Ireland	Data are provided monthly to the Dept of Health; each disc contains 2 years data	All discharges should be provided within three months of the period to which they relate, but will be accepted for up to 2 years. For practical purposes, data set can be considered complete after 6 months from year end. This is the data set used for case mix allocations.
Italy	Data are provided by the Regions to the Ministry of Health twice a year. By 31st December Regions should provide data relate to the first six months of the current year; by 30th June they should provide data relate to the second six months of the previous year.	Data are published yearly. They are available for analysis and published within 15 months after the year to which they relate.
Luxembourg	Data are collected continuously	Data are analysed on a yearly basis. Data should be complete 9 months after the end of the year. Data are given to the Ministry of Health for analysis and publication in the autumn.
Netherlands	Data collected continuously	Information is published annualy (calendar year). We 'close a year' the 1st of may.
Portugal	Information is collected monthly; can be provided on, e.g., quarterly basis.	Data are available two months after the end of the calendar year. The data are collected continuously, but can be provided with more reliability on annual basis (Calendar year).
Spain		
Sweden	Annual – Calendar year	Long delays (>12 months) in data becoming available; hope to improve

Geographic information—patients

Country	*Data items*	*Geographic level of analysis*
Austria	Post code / country of residence (3 digit code)	Analysis by catchment area using GIS on the level of communities or districts possible; data must be aggregated to province or national level for publishing.
Belgium	INS code (town – village) and Land code of legal place where patient lives. Land code - for inhabitants (Belgian or not Belgian) of Belgium it is code "150". Is it just one code "150" or is it 150 different codes? It is just one code "150" - For patients (Belgian or not Belgian) –living abroad, then the country code is used.	Data generally available at the level of 'arrondissements', of which there are 43 in Belgium (permission required by Commission)
Denmark	Information on place of residence at county/municipality level.	Data are not available at patient level; can only be provided at aggregate level (no information on level of aggregation).
United Kingdom of which -		
England	Post code	Decided on case by case basis; publication of data at Health Authority level is generally acceptable (~100 HAs).
Northern Ireland	Post code	Decided on a case by case basis. District council, Ward level generally acceptable
Scotland	Postcode (M)	
Wales	Post code	Data published by Health Authority, Unitary authority, Ward level
Finland	County, city, town, municipality, parish. Patients are linked to these districts via their PIN	Patient level data is not available on routine basis to anybody. It demands application, defined users and defined use and defined time of use. Thus for international databases, only aggregated data and indicators are available. For research purposes and administrative analyses data may be used at any NUTS level, municipality and by coordinates**.**
France	Post code automatically regrouped to geographic areas of at least 1000 population	Analysis is conducted at this level, although not all hospitals currently provide postcode information. This level of geographic information would probably be available to other European countries.

Geographic information—patients (continued)

Country	*Data items*	*Geographic level of analysis*
Germany	For persons living in Germany: the four levels of geographical classification are Bundesland, administrative region, district, municipality. For persons not living in Germany: Country where they live.	Aggregated data is available for everybody. Data on individual level is not available for anybody. It has to be anonymised. Anonymised data can be used by German (university) researchers. If anybody wants results from diagnosis statistic the Statistisches Bundesamt has to do a specific analysis.
Greece	Analysis is at sub national level by regions (according to Greek administration division – by "nomos") and patients are recorded where they live. This allows the Statistical Office to produce aggregate records and the calculation of flows of patients between regions. These geographic aggregate data can be accessed by other EU countries.	No data is kept for residents outside the country**.**
Iceland	Municipality and health care district codes.	Decided on a case by case basis. Only national level data available to EU countries. Each hospital has a special code which enables identification. Data on discharges, diagnoses, surgical procedures, hospitals days, etc. is published for each hospital, although with diagnoses and surgical procedures these are published in categories, not by individual diagnosis or procedure. This information is available for use outside the country. More detailed break-down of diagnoses or procedures would be done on a national level in order for it to be published, either in Iceland or abroad.
Ireland	County of residence	Can be aggregated to higher levels (no information on what level would be available to other EU countries)

Geographic information—patients (continued)

Country	*Data items*	*Geographic level of analysis*
Italy	City or Country of birth (6 digit code): if the patient is born in a foreigner country, the first 3 digits should be 999 followed by the Country code. City or Country of residence (6 digit code): if the patient dwells in a foreigner country, the first 3 digits should be 999 followed by the Country code. Region of residence (3 digit code), the Country code if the patient dwells in a foreigner country. Geographical codes are given by ISTAT (National Statistical Institute). Health care district code.	Discharges can be aggregated by Region or Country of residence, health care district, Region or Country of birth.
Luxembourg	Place of residence	Analysis on country level
Netherlands	Post code (4 digit code)	Analysis on aggregated level (e.g. 27 health regions; 12 regions; municipality)
Portugal	Parish, council, district.	This information is a part of the identification of the patient and is available in code; Example 2 digits for district, 2 digits for the council and 2 digits for parish (like 12.05.15) and this information is available for analysis by other Member States.
Spain	Post code (6 digit code)	The following place of residence codes are used by the National Statistical Institute – 01= Andalucia; 02= Aragon; 03= Asturias; 04= Baleares; 05= Canaries; 06= Cantabria; 07= Castilla – La Mancha; 08= Castilla y Leon; 09= Catalonia; 10= Valencia; 11= Extremadura; 12= Galicia; 13= Madrid; 14= Muurcia; 15= Navarra; 16= Basque Country; 17= La Rioja; 18= Ceuta y Melilla; 19= Foreign; 99= Not specified.
Sweden	County, city, town, municipality, parish.	Decided on case by case basis.

Geographic information—hospitals

Country	
Austria	Hospital number allows analyses by hospital, but publishing data by hospital requires permission from the hospitals, or data must be anonymised (regional or national level for publishing)
Belgium	INS code of hospital collected (as for patients, above); no information on geographic level of analysis**.** At the Ministry analysis on hospital level (each hospital can receive feedback) But for publication – usual at the level "arrondissement" (see above)
Denmark	Possible to analyse by location of hospital.
United Kingdom of which -	
England	Data provided on the basis of 'Hospital Trusts' (about 400 in England each consisting of one or more hospitals).
Northern Ireland	Data provided by Hospital or Hospital Trust. Includes time & distance travelled to hospital for each episode.
Scotland	Each hospital has a Location Code (M), which can presumably be linked to an address to provide whatever geographic information is required. Data are generally analysed on for Health Board Areas (both for patient residence and where care provided)
Wales	Data provided by hospital site (38) and Trust level (14)
Finland	Possible to analyse by location of hospital at the level of district, county or municipality
France	Each hospital is identified by a FINESS number, which locates it in a department or region. There are two levels of geographical analysis coded on the database currently used.
Germany	Each hospital can be identified by a number together with the Bundesland-code and there are also four levels of geographical classification: Bundesland, administrative region, district, municipality. But as this is on individual level, data is not available for anybody. Aggregated data has no information about a single hospitals.
Greece	Data are analysed by location of hospital and in the new system will be aggregated regionally (according to each regional board). Other EU countries can have access to these data.
Iceland	Hospital numbers allow analysis by hospital. Each hospital has a special code which enables identification. Data on discharges, diagnoses, surgical procedures, hospitals days, etc. is published for each hospital, although with diagnoses and surgical procedures these are published in categories, not by individual diagnosis or procedure. This information is available for use outside the country. More detailed break-down of diagnoses or procedures would be done on a national level in order for it to be published, either in Iceland or abroad.

Geographic information—hospitals (continued)

Country	
Ireland	Hospital number theoretically allows analysis by hospital, but publishing data by hospital requires permission from the hospitals, or data must by anonymised.
Italy	The hospital national code allows to identify the hospital and know its geographic information. There are some restrictions to access data with area detail for hospitals.
Luxembourg	Analysis by hospital. Data by hospital site are on the internet (www.etat.lu/MS/MIN_SANT/Indexes/Cartesanitaire.htm)
Netherlands	Hospital number allows analyses by hospital (even location per hospital), but publishing data by hospital requires permission from the hospitals, or data must be anonymised (regional or national level for publishing)
Portugal	Information on location of hospital—parish, council, district The hospitals are identified by the name but it is easy to convert the name of the hospital by his location by district, council and parish same geographic information for patients. Like geographic information for patients, the geographic information for hospitals are available for other Member States to analyse.
Spain	
Sweden	Possible to analyse by location of hospital. Most hospitals are situated in one street address. But in some districts a hospital is analysed as part of the health care organisation and parts of the hospital might be situated in different cities.

Age/date of birth

Country	
Austria	Date of birth; if not known then hospital administrative staff estimate the age of patient based on known facts.
Belgium	Year of birth only, for reasons of confidentiality.
Denmark	Age - calculated as date of admission minus date of birth.
United Kingdom of which -	
England	Date of birth
Northern Ireland	Date of birth
Scotland	Date of birth (dd/mm/yyyy) (M)
Wales	Date of birth (ccyymmdd)
Finland	Date of birth
France	Age: in years (for patients over 1 year old) and in days for infants less than 1 year The DOB is not within the database – so only have age of patient. **Ciara O'Shea : According to your metadata document, age is calculated as date of admission minus date of birth.**
Germany	Month of birth (mm) and year of birth (yyyy).
Greece	Age and date of birth are recorded
Iceland	Age at discharge. Personal identification number shows date of birth but is coded before data is transferred to health authorities and thus unavailable. In Iceland each person is assigned a 10-digit personal identification number at birth by Statistics Iceland. This is subsequently used to identify this person on all public records and where ever identity needs to be determined. The number is comprised of the person´s birthday and year, followed by a slash and four numbers, the first 3 of these 4 are random but the last indicates the century one is born in. These numbers are used to identify patients in the hospitals. When we receive the data this number has been scrambled so that we are unable to identify the person. However, this is done in a consistent manner so that we can trace the individual through the system although we cannot tell who this individual is. Normally the first 6 digits are used to figure out people´s age and their age is not recorded separately in patient records. However, given that the data is scrambled when we receive it we are also provided with the individual´s age upon discharge.
Ireland	Date of birth
Italy	Date of birth (8 digits ddmmyyyy). The age of the patient is calculated.
Luxembourg	Date of birth (yyyymmdd)
Netherlands	Date of birth 8d:ddmmyyyy
Portugal	Date of birth
Spain	Date of birth
Sweden	Age at discharge, date of birth, age at admission can be calculated.

Gender

Country	
Austria	Male or female
Belgium	Indefinable (newborn child) (0), Male (1), Female (2), Changed (transsexual) (3).
Denmark	Male or female
United Kingdom of which -	
England	Males (1), Females (2), Indeterminate (3). Patients undergoing sex change are included under code (3).
Northern Ireland	Male (1), Female (2), Indeterminate (3).
Scotland	Not Known (0); Male (1); Female (2); Not specified (9) (M)
Wales	Males (1), Females (2), Indeterminate (3). Patients undergoing sex change are included under code (3).
Finland	Male, Female (included in patient's PIN)
France	Male (1), female (2)
Germany	Male, female and unknown.
Greece	Gender is recorded as Males, Females
Iceland	(1) Adult male, >=18 yrs.; (2); Adult woman, >= 18 yrs; (3) boy, <=17 yrs; (4) girl, <=17 yrs.
Ireland	Males, females, unknown
Italy	(1) male and (2) female
Luxembourg	Male, female
Netherlands	Male or female or unknown
Portugal	Male (1), female (2)
Spain	1= Male; 2= Female; 3 = Indeterminate; 9= Not specified
Sweden	Male, female or unknown

Social class/deprivation

Country	
Austria	Not collected
Belgium	Not collected
Denmark	Not collected
United Kingdom of which -	
England	Not collected; analysis possible using postcode to link each patient to an area and assigning the deprivation score of that area.
Northern Ireland	Not collected; Episodes assigned deprivation scores using postcode.
Scotland	'Deprivation category' is a derived data item based on patient postcode using the Carstairs deprivation categories
Wales	Not collected currently
Finland	Not collected via hospital data, however, such data are available in other registers and register linkage on special permission is possible
France	Not collected
Germany	Not collected
Greece	No deprivation or social class is recorded. Patients are recorded according to the Public Fund they belong to (more than 40) where "indirectly" a social analysis can be made
Iceland	Not collected.
Ireland	Granting of medical card is means tested and so gives some indication of the social status of the card holder (medical card yes/no/unknown is collected). However, a medical card is now granted to all people aged 70+. Thus in this age category it may not be a good indicator of social status. This came into effect in 2001.
Italy	Not collected.
Luxembourg	Not collected via hospital data, but linkage to other data sources possible via unique personal identification number
Netherlands	Not collected
Portugal	Not collected
Spain	
Sweden	Analysis by social class possible by linking to other data sources. This is done by record linkage capabilities.

Length of stay

Country	
Austria	Length of stay calculated as discharge date minus admission date (days)
Belgium	Length of stay calculated as discharge date minus admission date (days). Since 1993, year, month and day of week of admission and discharge collected, not actual date. The hospital knows the real date and can provide the result.
Denmark	Length of stay calculated as the difference between date of admission and date of discharge. **Is it specified in "days"?**
United Kingdom of which -	
England	Length of stay is the number of days between 'date of admission' and 'date of discharge'. Date of admission is copied through to all records relating to successive consultant episodes in a spell, and it is possible to identify records relating to episodes that are the last in a spell. Spell duration is a standard derived data item on the database.
Northern Ireland	Length of stay is the number of days between 'date of admission' and 'date of discharge'. Date of admission is copied through to all records relating to successive consultant episodes in a spell, and it is possible to identify records relating to episodes that are the last in a spell. Stay duration is a standard derived data item on the database
Scotland	Calculated by subtracting discharge date (M) from admission date (M). One overnight stay is counted as 1 day not 2 days.
Wales	Length of stay for spell is the number of days between 'date of admission' and 'date of discharge'. Date of admission is copied through to all records relating to successive consultant episodes in a spell, and it is possible to identify records relating to episodes that are the last in a spell. Spell duration is a standard derived data item on the database.
Finland	Length of stay calculated; discharge, census Length of stay calculated as discharge date – admission date – 1 day (both are counted together as one day). Also report also number of in-patient days per patient per year. Census means patient inventory at the end of the year. Thus we are able to collect data on those patients remaining at wards over the yeas shift. Their length of stay for that year is also possible to count.
France	Length of stay is the number of days between 'date of admission' and 'date of discharge'. Date of admission is copied through to all records relating to successive consultant episodes in a spell, and it is possible to identify records relating to episodes that are the last in a spell. Spell duration is a standard derived data item on the database.

Length of stay (continued)

Country	
Germany	Length of stay is the day of admission plus each "full" day. The day of discharge is not counted. (Calculation similar to a hotel stay!). Persons being in hospitals only for a few hours are so called "hour cases". They have zero days of stay.
Greece	Length of stay is calculated as “date of discharge minus date of admission” and expressed in days. .
Iceland	Discharge date minus admission date. Length of stay is expressed in days and calculated by subtracting the date of admission from the date of discharge. E.g. admission on 10.12.2001; discharge on 13.12.2001 = 3 days.
Ireland	Length of stay calculated as discharge date minus admission date (days).
Italy	Length of stay is calculated in days as difference between discharge and admission date. In case of inpatient discharges ended on the same day of the admission, the length of stay is set equal one day. For day cases the whole number of days of treatment must be specified.
Luxembourg	Is calculated as discharge date minus admission date + 1
Netherlands	Length of stay calculated as discharge date minus admission date (days) [nb admission after 20.00 → next day] The ‘20.00 hour’ rule is only important for counting the number of admission days.
Portugal	Length of stay calculated as the number of days between admission and discharge, less one day.
Spain	
Sweden	Number of days between date of admission and date of discharge for each episode. There is no problem to calculate it for hospital stays or in any other way.

Type of admission

Country	
Austria	Not possible to distinguish elective and emergency admissions. Type of admission distinguishes usual admission to the general inpatient area (including intensive care units) from admission to special service areas e.g. psychiatric day/night clinic, rehabilitation, nursing care only and day care**.**
Belgium	Several categories, including two types of emergency admission, planned admission, day hospitalisation, and 'return'.
Denmark	Information is collected on whether admission was emergency/acute or non-emergency/acute. **Ciara O'Shea : There are 3 categories in your metadata - emergency/acute and non-emergency/acute and Not Available**
United Kingdom of which -	
England	Possible to separately identify elective, emergency and maternity admissions, plus subcategories of each of these and several 'other' categories.
Northern Ireland	Possible to separately identify elective, emergency and maternity admissions, plus subcategories of each of these and several "other" categories.
Scotland	Three broad categories—emergency, urgent, routine and other (for maternity and neonatal)—with several sub-categories within each (M). An urgent admission is a type of emergency admission where the admission is delayed for hospital/patient reasons and the patient's condition is such that he/she is not clinically compromised or disadvantaged by the short delay.
Wales	Admission method (hospital provider spell) 11,12,13 Elective Admissions 21-28 Emergency Admission 31-31 Maternity Admissions 81-85 Other admissions
Finland	1 emergency; 2 planned admission; 3 transferred from out-patient clinic; 4 moved from another main speciality; 5 transferred from another hospital; 9 other
France	Information on type of admission not collected
Germany	Information on type of admission is not collected in diagnosis statistic. Basic hospital data distinguished the patients (if the criterion applies) into 1. discharges (without persons who died) 2. patients transferred into another hospital and 2. patients who died. Basic hospital data has also information on how many patients have been transferred from what kind of unit to what kind of unit in the same hospital.
Greece	Admission is recorded as "emergency" and "normal" (by referral)

Type of admission (continued)

Country	
Iceland	Acute or elective. Up until 1999 there were 2 codes, acute and elective. Beginning in 1999, with the publication of the defined limited data set, published by the Directorate of Health, 3 codes were defined, 1=acute; 2=semi-acute (patient was on waiting list but due to deterioration has to be admitted earlier than planned). 3=elective. Adherance to these cannot be guaranteed for all hospitals, i.e. some still only use acute/non-acute.
Ireland	10 categories, including 6 for emergency (i.e. different causes). Changed in January 2002 to 7 categories (Elective, Elective readmission, Elective Maternity, Emergency, Emergency readmission, Emergency Maternity, New born)
Italy	For day cases it is possible to identify the following kinds of admission: 1. Follow up; 2. Day surgery; 3. Day care; 4. Day rehabilitation. For inpatients it is possible to identify the following kinds of admission: 1. planned and not urgent admission; 2. planned admission, with procedures carry out before the admission; 3. urgent admission; 4. compulsory admission. "Compulsory Admission" could be considered either planned or urgent. It is authorised by the Mayor, as a standing responsibe for public health, on a doctor's request.
Luxembourg	Two variables are recorded: - elective or emergency - illness, maternity, or accident
Netherlands	acute versus non-acute admissions
Portugal	Information is collected on whether admission was emergency or elective. There are two types of admission : Code 01 - planned admission , code 02 – not planned admission.
Spain	
Sweden	Sweden only have 2 categories: planned or not planned admission.

Diagnoses

Country	*Classification*	*Definition of main diagnosis*	*Additional diagnoses*
Austria	ICD-9; changed to ICD-10 in 2001	Diagnosis finally established as the main reason for the hospital stay (discharge diagnosis)	Recorded , Unlimited
Belgium	ICD-9. No change to ICD10 likely in the near future.	Principal diagnosis: 'the condition established after study to be chiefly responsible for occasioning the admission of the patient to the hospital	Information collected on main and secondary diagnosis. The number of diagnosis collected/coded is not limited – information is collected on all diagnoses.
Denmark	ICD-10 used from 1994. ICD-8 prior to 1994.		
United Kingdom of which -			
England	ICD-10 used from 1995/6	Primary diagnosis: 'the main condition treated or investigated during the episode of healthcare'	In addition to the primary diagnosis there are 6 further diagnosis fields: the first for any subsidiary diagnosis and the remaining 5 for secondary diagnoses
Northern Ireland	ICD-10 used from 1996/7 ICD-9 used until 31 March 1996	Primary diagnosis: 'the main condition treated or investigated during the episode of healthcare'	In addition to the primary diagnosis there are 6 further diagnosis fields: the first for any subsidiary diagnosis and the remaining 5 for secondary diagnoses
Scotland	ICD–10	The condition, diagnosed at the end of the episode of health care, primarily responsible for the patient's need for treatment or investigation.	Main condition plus up to five additional conditions (M)
Wales	ICD 9 until 31/3/95 ICD10 from 1/4/95	Primary diagnosis: 'the main condition treated or investigated during the episode of healthcare'	Primary diagnosis, subsidiary diagnosis and up to 14 secondary diagnoses

Diagnoses (continued)

Country	Classification	Definition of main diagnosis	Additional diagnoses
Finland	ICD-10 from 1995 ICD-9 1987-1994 ICD-8 1969-1986	Main diagnosis is the one demanding most resources and / or original reason for admission	Main diagnosis plus two pairs of additional diagnosis codes (etiology + symptom); may be extended to seven pairs Next year 20 pairs may be reported
France	ICD-10 used from 1998	The main diagnosis is the one that uses most of the medical effort in the course of the stay (i.e. uses most resources)	It is possible to code up to 99 additional or secondary diagnoses.
Germany	ICD-9 (without external causes) used until 1999, ICD-10 (in a version for hospitals without external causes) from 2000 onwards	Main diagnosis: is defined as the one which after analysis was mainly responsible for the patients stay in hospital.	
Greece	ICD9 is used since 1980.	Main diagnosis only is coded.	
	Move over to ICD10 will be in 2002.	Main diagnosis only is coded which is defined as diagnosis at discharge.	
Iceland	ICD-10 used from 1997. However, chapter XX, external causes of morbidity and mortality, is not used but the NOMESCO Classification of External Causes of Injuries.	Primary diagnosis is to reflect the main reason for tests and treatment. If a choice needs to be made between two or more diagnoses the one which demands the most care/resources is to be chosen as the primary diagnosis.	Up to 5 other diagnosis are recorded, besides the primary diagnosis.
	Before 1997 ICD-9 was used.		
Ireland	ICD-9-CM. Expect to move to ICD-10-CM within next couple of years depending on availability of procedure codes for ICD-10-CM.		Up to 2002 1 main diagnosis and 5 additional diagnoses. From 1/1/2002 it is 1 main and 9 secondary diagnoses.

Diagnoses (continued)

Country	*Classification*	*Definition of main diagnosis*	*Additional diagnoses*
Italy	Since 1995, the beginning of this data collection, up to 2000, Regions have used ICD-9. The Ministry of Health has converted those codes into ICD-9-CM using special tables of converting. Since 2001 Regions have used ICD-9-CM. Not likely to move to ICD-10 in the near future about the hospital data set. The Institute of National Statistics will soon adopt ICD-10 for mortality data.	The main diagnosis is identify at the moment of the discharge. It must be the main reason for hospital treatment and care. If there were more main diagnoses, it must be indicated as the main that one requiring more resources. If a neoplasia is the reason of the admission, it must be indicated as main diagnosis.	Up to five secondary diagnoses can be indicated. They can be existing at the admission or developed after, but requiring care and treatment.
Luxembourg	ICD-10 from July 1997 (3 characters). No diagnosis coding before 1997.	Main reason for the hospital stay	Up to 3 secondary diagnoses
Netherlands	ICD-9-CM used since 1990 change to ICD10 likely in the future	Diagnosis finally established as the main reason for the hospital stay (discharge diagnosis)	Per admission max. 99 responsibility periods (RP) are possible and per R.P. 1 main and max. 9 additional diagnoses. A patient may be treated by different specialists. Each time a patient switches from specialist we're talking about a new RP. Main level of analysis is an admission with a main diagnosis**.**
Portugal	ICD-9-CM; No change to ICD10 likely in the near future.	"Main" diagnoses is the condition established after study to be chiefly responsible for occasioning the admission of the patient to the hospital.	It is possible more 6 additional diagnoses.

Diagnoses (continued)

Country	*Classification*	*Definition of main diagnosis*	*Additional diagnoses*
Spain	ICD-9-CM		I main diagnosis and 9 secondary diagnoses.
Sweden	ICD-10 used from 1997 (from 1998 in one county)	The main condition, diagnosed at the discharge, primarily responsible for the patients stay in the department.	Up to 8 recorded inclusive of main diagnosis.

Operative procedures

Country	*Classification*	*Number recorded*
Austria	**Collecting** data on 'medical services items', based on a catalogue of services published by the Federal Ministry for Social Security and Generations, which contains 940 procedures (720 operative and 220 non-operative)	Maximum of 9 procedures per case until end of the year 2000; no restriction of number of procedures to be recorded per case since 1.1.2001.
Belgium	ICD-9-CM procedures	Unlimited coding of procedures. We don't code primary and secondary procedures.
Denmark	Nordic Classification of Surgical Procedures	
United Kingdom of which -		
England	4th revision of the OPCS Operation Classification	Up to 4 procedures can be coded for each consultant episode.
Northern Ireland	4th revision of the OPCS Operation Classification	Up to 4 procedures can be coded for each consultant episode.
Scotland	OPCS4	Up to four pairs of procedures may be recorded (main operation plus three other operations) (M)
Wales	4th revision of the OPCS Operation Classification	Up to 12 operative procedures can be recorded per episode**.**
Finland	Nordic classification of surgical procedures used from 1997 And prior to 1997 the classification of 'Federation of hospitals' was used since 1983.	No information given Question: How many procedures do you code? Do you code/identify "main" procedure? If so how do you define? We code 1 main operation with 3 codes + 2 other operations. This may be extended to 7 or 20 next year The Main Procedure is the procedure demanding most of the resources. It is a clinical decision.

Operative procedures (continued)

Country	*Classification*	*Number recorded*
France	cdAM catalogue The CdAM comprises the following 7 fields: Alpha: diagnostic and therapeutic Beta: anaesthesia Gamma: X-ray? Mu: radiotherapy Rho: Pathology? Tau: biology Omega: resuscitation The operative procedures are coded under the Alpha field under the following 17 chapters. The codes are alphanumeric in 4 positions. They start with a letter followed by 3 numbers. An example for operative procedures on the appendix – L260: acute appendectomy L261: etc.	The PMSI counts up to 99 codes for each hospital stay.
Germany	No coding of surgical procedures, just the question (to answer with yes/no): Has there been a surgery in context with the main diagnosis?	
Greece	Surgical procedures are not coded in Germany	
Iceland	Nordic Classification of Surgical Procedures (NCSP) from 1997. Prior to 1997 the WHO Classification of Procedures in Medicine was used.	Code for main procedure is placed first. No limit on numbers recorded, however, only 6 are collected. Code for main procedure is placed first and subsequent codes are placed by order of importance. A total number of 6 procedures are collected. Main procedure is determined by the surgeon based on complexity, relevance to primary diagnosis and amount of resources used. Prior to 1997 the WHO Classification of Procedures in Medicine was used.
Ireland	ICD-9-CM procedures (4-digit)	As of 1/1/2002 one principal procedure and up to 9 additional procedures. Prior to this it was one principal procedure and 3 additional procedures.

Operative procedures (continued)

Country	*Classification*	*Number recorded*
Italy	Since 1995, the beginning of this data collection, Regions have used ICD-9-CM. Procedures (4 digit)	The main surgical procedure or delivery. The main surgical procedure is most likely to connect with the main diagnosis of discharge. It is possible to indicate up to five secondary surgical or not surgical procedures. The surgical procedures have the priority, because they are likely to require more resources.
Luxembourg	Classification of operative procedures according to the national tariff scheme for medical services	
Netherlands	Adaptation from originally International Classification of Procedures in Medicine (ICPM, WHO, 1978). – in use since 1990	- Per admission max. 99 responsibility periods (RP) are possible and per R.P. 1 main and max. 99 additional procedures. - But at the end we've per admission one main diagnosis and one main procedure
Portugal	ICD-9-CM procedures in used since 1993	We code surgical interventions and procedures of obligatory notification for the classification in diagnoses related groups
Spain	ICD-9-CM	10 operative procedures and in addition 5 obstetric procedures.
Sweden	Nordic classification of surgical procedures	Up to 12 surgical procedures. Main procedure is not identified.

Specialties

Country	
Austria	No specialties as such, but 6-digit 'functioncodes' provide information on which ward/department/service area the patients get their treatments In the medical sector we have 409 function-codes. We have a national standard coding classification and coding frame (you find the list in the enclosure – but only in German language). Please also have a look at point – Admitting hospital department (page 9) in the document (encl.) hospitaltranslation.doc
Belgium	Hospitals can send data broken down by specialty, but this is not mandatory; there is a minimum of 4 specialties. The 4 specialties must be given i.e. mandatory - psychiatric specialties in general hospitals (they have a RPM registration) - services for care and revalidation (sp services): these are special units for treatment of patients who suffer from lung and heart diseases (sp for lung and heart diseases) or from neurological diseases (sp neurological diseases), or patients who cannot walk anymore (sp "locomoteurs" diseases), patients who suffer from chronic diseases (sp chronic diseases), or palliative units (sp palliative). All these patients need long treatment and many disciplines to re-establish or keep a high physical, social and mental level. - intensive care and - burn units for the other specialties, the hospital can decide which specialties they will mention. .
Denmark	Information is collected using a classification of doctor's specialties.
United Kingdom of which -	
England	'Main specialty' of the consultant and 'treatment specialty' (i.e. reflecting what the consultant is doing during that particular episode) are recorded for each episode. The code list comprises specialties recognised by the Royal Colleges and Faculties.
Northern Ireland	'Main specialty' of the consultant recorded for each episode. The code list comprises specialties recognised by the Royal Colleges and Faculties.
Scotland	A Specialty is defined as a division of medicine or dentistry covering a specific area of clinical activity and identified within one of the Royal Colleges or Faculties. The Specialty/Discipline of the consultant/GP/HCP who is in charge of the patient episode is recorded (M)—list of specialties given in data manual.
Wales	Specialty Function Code; Consultant Specialty Function Code; Local Sub Specialty (Wales). Specialty Function code is the specialty under which the patient is treated Consultant Specialty is the main manpower code of the consultant Local sub specialty defines burns/plastic and cardiothoracic

Specialties (continued)

Country	
Finland	Classification with 64 specialties coded

Erikoisala

10	*SISÄTAUDIT*
10A	allergologia
10E	endokrinologia
10F	geriatria
10G	gastroenterologia
10H	hematologia
10I	infektiosairaudet
10K	kardiologia
10M	nefrologia
10R	reumatologia
20	*KIRURGIA*
20G	gastroenterologia
20J	käsikirurgia
20L	lastenkirurgia
20O	ortopedia
20P	plastiikkakirurgia
20T	thorax- ja verisuonikir.
20U	urologia
25	*NEUROKIRURGIA*
30	*NAISTENTAUDIT JA SYNNYTYKSET*
30E	endokrinologia
30Q	perinatologia
30S	sädehoito
30U	urologia
40	*LASTENTAUDIT*
40A	allergologia
40D	neonatologia
40E	endokrinologia
40G	gastroenterologia
40I	infektiosairaudet
40H	hematologia
40K	kardiologia
40M	nefrologia
50	*SILMÄTAUDIT*
50N	neuro-oftalmologia
55	*KORVA-, NENÄ- JA KURKKUTAUDIT*
55A	allergologia
55B	audiologia
57	*FONIATRIA*
57B	audiologia
58	*HAMMAS- , SUU- JA LEUKA-SAIRAUDET*
58V	suu- ja leukakirurgia
58Y	kliininen hammashoito
60	*IHO- JA SUKUPUOLITAUDIT*
60A	allergologia
60C	ammatti-ihotaudit
65	*SYÖPÄTAUDIT JA SÄDEHOITO*
70	*PSYKIATRIA*
70F	geriatrinen psykiatria
70X	nuorisopsykiatria
70Z	oikeuspsykiatria
75	*LASTENPSYKIATRIA*
75X	nuorisopsykiatria
77	*NEUROLOGIA*
77F	geriatria
78	*LASTENNEUROLOGIA*
80	*KEUHKOSAIRAUDET*
80A	allergologia
93	*LIIKUNTALÄÄKETIEDE*
94	*PERINNÖLLISYYSLÄÄKE-TIEDE*
95	*TYÖLÄÄKETIEDE JA TYÖTERVEYSHUOLTO*
96	*FYSIATRIA*
97	*GERIATRIA*
98	*YLEISLÄÄKETIEDE*

They are based on the treatment, not on administrative definitions. Often this is the same as the speciality of the doctor in charge.

Specialties (continued)

Country	
France	No information on specialty or the unit within the hospital in which the patient was treated. Two other classifications are used: 'Major Diagnosis Category' (28 groups) and 'Homogeneous Group of Patients' (580 groups, based on American DRGs)
Germany	In the diagnosis statistic we have information about the hospital the patient was treated in (size, responsible body, hospital type, number of beds in classes) and further information as: unit within hospital the patient was treated for the longest time, day of admission and discharge (dd.mm.yyyy), if the person died (yes/no).
Greece	Data are collected by specialty (by recording essentially the specialty of the clinical ward the patient is discharged from)
Iceland	Hospital departments give indication of speciality. Also, beginning in 1999 codes are used for specialities. Before 1999, there was some inconsistency in the use of codes for specialties and each institution used its own coding system. Beginning in 1999 an official coding system for specialties was published by the Directorate of health as part of the minimum data set. This numerical code is now to be used nation-wide to determine medical specialties. The first number determines the area and subsequent numbers the sub-specialties. Example: 100=General pediatrics; 110=Neonatal intensive care; 120=Pediatric surgery.
Ireland	Only the specialty of the consultant associated with the principal diagnosis is recorded; 54 main headings and 45 sub-categories.
Italy	A national list of specialties (2 digit) must be used to indicate the operative unit in which the patient had physically stayed, even if the health treatment is in charge of another operative unit. The list reaches up to 69 codes. For example: oncology, pediatric oncology; nephrology, pediatric nephrology, nephrology qualified to transplants, etc.
Luxembourg	Identification number of consultant who makes the diagnosis coding is recorded. Linkage to medical specialty is possible.
Netherlands	We use a national standard developed by the Royal Dutch Medical Organisation (KNMG)
Portugal	Data are collected/analysed by 'service', but coding varies between hospitals. Service is a specialty. The code list comprises specialties recognised by the Medical Order.
Spain	
Sweden	No specialties as such; collect information on hospital department where patient stayed (national classification).

Source of admission

Country	
Austria	8 Categories (Including normal admission, direct transfer from another hospital and re-admission (i.e. re-admission within 7 days to the same hospital's inpatient area with the same main diagnosis); admission in special departments of the hospital like rehabilitation-department etc).
Belgium	8 categories (including home, other hospital, rest home, etc.)
Denmark	Data on type of referral: no referral; GP referral; other hospital; ambulatory.
United Kingdom of which -	
England	17 categories (including usual place of residence, NHS hospital provider, etc.)
Northern Ireland	9 categories (including usual place of residence, health service hospitals, etc.)
Scotland	'Admission/transfer from' (M) indicates the source of admission, or type of location from which a patient has been admitted. Main categories are: private residence; Institution; Temporary; Transfer from same provider; Transfer from other NHS provider; Other (many subcategories)
Wales	20 categories (including usual place of residence, NHS hospital provider, etc.) including inter and intra trust transfers
Finland	Source of admission (where patient came from, 3 main categories plus sub-categories); Mode of admission (6 categories); Source of referral (9 categories). (Translation of categories not given).
France	3 categories: entry by internal transfer (6), transfer from another establishment (7), entry from home (8).
Germany	No information at all on individual level (diagnosis statistic)! Information is available through basic hospital data, but only in sum for each hospitals (data on single hospitals is not available in Statistisches Bundesamt, here only aggregate). See coverage/patients
Greece	Not so detailed information on the origin (home etc.) of the patient when is admitted. We collect data on place of birth and place of residence within Greece. Not so detailed information on the origin of the patient when admitted. Usually the home address is specified if emergency case, the "home" or "another hospital source" is recorded according to the origin of the referral.

Source of Admission (continued)

Country	
Iceland	Beginning in 1999 there are nine numbered categories: home; same hospital, different speciality; other hospital; nursing home; old age home; outpatient clinic; born here; other; unknown. Before then there were fewer categories. Prior to 1999 there were only two categories for the source of admission. One indicated that the patient came from a different unit within the same hospital; the other was used for all other admissions, whether from home or from a different institution.
Ireland	10 sources of admission (home, transfer from nursing home/convalescent home or other long stay accommodation, transfer from hospital, transfer from other hospital, transfer from hospice, transfer from psychiatric hospital/unit, new born, temporary place of residence, prison and other)
Italy	Since 2001 the source of admission has been indicated by 8 categories: 1. admission without request of a doctor; 2. admission required by a general practitioner; 3. admission previous planned by the same hospital 4. patient transferred from a public hospital; 5. patient transferred from a private hospital, that has a contract with the National Health System; 6. patient transferred from a private hospital; 7. patient who is already in the same hospital as inpatient and becomes a day case or vice versa; 8. other. Before 2001 the categories 3, 5, 7 and 8 were not considered.
Luxembourg	Categories: other hospital (individual hospital number), other source of admission
Netherlands	Categories (home, home for elderly, other institute [again 6 categories], born in hospital We also know by whom is referred (gp, spec., other) Categories: Home home for elderly other institute i.e.: academic/general hospital categorial hospital nursery home psychiatric hospital rehabilitation centre other born in hospital

Source of Admission (continued)

Country	
Portugal	Not collected. Only for the patients direct transferred from other hospital.
Spain	
Sweden	Categories: from another department within hospital; from another hospital; from home for old people or similar type of institution; from home.

Destination on discharge

Country	
Austria	‘‘Type of discharge’ code (8 categories) differentiates between discharge from hospital (including death), transfer to another hospital and end of an inpatient’s hospital stay due to in-house transfer to another special service area (e.g. to rehabilitation) or expiry of social insurance coverage.
Belgium	9 categories (similar to list for source of admission, includes a category for death)
Denmark	Categories: discharged to a GP or specialised GP, another hospital department or ambulatory, dead and not available information.
United Kingdom of which -	
England	22 categories (similar to list for source of admission, includes a category for death)
Northern Ireland	11 categories (similar to list for source of admission but including category for death)
Scotland	‘Discharge/Transfer to’ (M) - gives the type of location to which a patient is discharged or transferred following an episode of care. Main categories as for source of admission, with the addition of ‘death’
Wales	25 categories (similar to list for source of admission, includes a category for death)
Finland	Different categories. This is the same as ‘where patient came from’ + died
France	4 categories: internal transfer (6), transfer to another establishment (7), return to home address (8), dead (9)

Destination on Discharge (continued)

Country	
Germany	No information on destination of discharge in diagnosis statistic! Through basic hospital data, but only in sum for each hospitals (not available in Statistisches Bundesamt, here only aggregate) the information is available in the following classification: 1. discharge out of hospital, 2. transfer to another hospital 3. died. From the reporting year 2002 onwards we will also have the following discharge information: 5. discharge into a rehabilitation centre and 6. discharge into a nursing home.
Greece	No information on destination after discharge is recorded (Greek system lacks follow up mechanism)
Iceland	Beginning in 1999 there are nine categories: home; same hospital, different speciality; different hospital; nursing home; old age home; died; left against medical advice; did not show up (only for ambulatory care); unknown. Before 1999 there were fewer categories. Prior to 1999 there were four categories for the destination on discharge. These indicated "home"; "other institution"; "same institution, different unit"; and "died".
Ireland	Pre 2002 8 categories (including home, long-stay accommodation, other acute hospital, died, etc.) As of 1/1/2002 expanded discharge categories to 15 categories (self discharge, home, nursing home/convalescent home or long stay accommodation etc)
Italy	The patient is discharged in the following cases: 1. Death of the patient; 2. Patient is allowed to go back home (inpatient) or the cycle of treatment is finished (day case); 3. Patient is transferred to a nursing home; 4. Patient is allowed to go back home but with home care services; 5. Patient decides to leave the hospital (or interrupts the cycle of treatment) without doctors' approval; 6. Patient is transferred to another hospital for acute care; 7. Inpatient becomes day case or vice versa or when the kind of general treatment changes (acute care, rehabilitation and long stay). 8. Patient is transferred to another hospital for rehabilitative care; 9. Other.
Luxembourg	Categories: home, other hospital (individual hospital number), nursing home, died

Destination on Discharge (continued)

Country	
Netherlands	Categories (home, home for elderly, other institute [again 4 categories], born in hospital Categories: Home home for elderly other institute i.e.: academic/general hospital categorial hospital nursery home psychiatric hospital rehabilitation centre other died in hospital left against advice
Portugal	We collect information on destination on discharge; we have 5 code for this: 01 – for home; 02 – for other acute hospital; 03 - for home service; 07 – against medical decision; 20 – dead.
Spain	
Sweden	Categories: to another department within hospital or to another hospital; to home for old people or similar type of institution; home; death.

Annex 3

Prior Initiatives and Current Projects

Below is a list of prior initiatives and current projects which were consulted or referred to as part of the project research.

- ENS-Care.
- EUCOMP: Towards Comparable Health Care Data in the European Union.
- Euro-Med-Data: Clinical Information in Europe.
- Validity and Comparability of Nordic Hospital Discharge Statistics.
- System of Health Accounts, OECD.
- ECHI: The European Community Health Indicators (ECHI) Project (1 & 2).
- OECD Health Data 2001.
- WHO Health for All.
- HIEMS: Health Information Exchange and Monitoring System.
- EU Diabetes Indicator Project.
- HOPE (Standing Committee of the Hospitals of the European Union): The European Health Care Data Project.
- Canadian Institute of Health Information: Roadmap initiative. Health Indicators Project.
- Healthy People 2010 (USA).
- FNORS ISARE project: Health Indicators in the European Regions.

Annex 4

Indicator-Relevance of HDP Data Items

As part of the research into what data items should be included in the HDP common data sets, indicators (and the data required to support them) identified in other projects were examined. This is the paper which summarises this research. Included also is a paper circulated at a full group meeting in Lisbon (May 2002), which summarises the finding of this research paper and helped decide what to include in the common data sets.

The table below aims to summarise the 'indicator relevance' of the data items on the HDP inventory, plus additional data items that may be considered for inclusion in the core data set.

In compiling this summary, eight indicator projects have been considered (see below). In many cases the indicators have not yet been fully specified (or information on specifications does not seem to be readily available), so it is not always clear what data items would be needed to support them. For some of the indicator sets, detailed diagnosis and procedure groupings have been put forward (see Appendices to this Annex).

The table shows that some data items feature much more prominently than others in the indicator sets considered. In particular, age, diagnoses, procedures, length of stay, beds and external cause are important for many indicators, while gender, type of admission, source of admission and destination on discharge appear to be much less important.

The indicator sets/projects considered are:

- ECHI: The European Community Health Indicators (ECHI) Project
- OECD Health Data 2001
- WHO Health for All
- HIEMS: Health Information Exchange and Monitoring System
- EU Diabetes Indicator Project
- HOPE: The European Health Care Data Project
- Canadian Institute of Health Information: Roadmap initiative. Health Indicators Project
- Healthy People 2010 (USA)

The Appendix to this paper provides more detailed information on these.

Indicator-relevance summary table

Inventory data item	Project	Indicators	Comments
Coverage—patients (the focus here is on indicators that specify patient groups other than all inpatients)	ECHI	Surgical day cases: total; for key procedures	Only a few indicators explicitly require the separate identification of day cases. (Presumably the scope, in terms of type of patients included, would need to be specified when indicators are properly defined, which most are not at this stage.)
	OECD Health Data 2001	Total surgical day cases	
	WHO HFA	Average number of outpatient contacts per year per person	
	HIEMS	Number of discharges, day cases excluded (both health care facilities and overnight patients data sets)	
Coverage—hospitals	WHO HFA	Admissions in acute hospitals	Most indicators do not specify scope in terms of hospital type. Where this is addressed, the focus is on the short-stay/ long-stay distinction, or the identification of 'acute care' hospitals. None of the indicators refer to public vs private hospitals (although ECHI and WHO HFA make the distinction between public and private beds—see below)
	Healthy People 2010	Number of discharges from short-stay hospitals among persons aged 65 years and older for vertebral fractures	
	CIHI Roadmap	Hysterectomy provided to inpatients in acute care hospitals, per 100,000 women aged 20+ (age standardised)	
	HIEMS	Hospital type: short term or long term care, plus sub-categories under each (health care facilities data set)	
Basic statistical units capable of being analysed	ECHI	Discharges: total; by disease group	Indicators are most commonly based on discharges, but several are based on admissions. Indicators that require a breakdown by diagnosis usually relate to discharges. Several of the USA and Canadian indicators
	OECD Health Data 2001	Acute care turnover rate: number of admissions/discharges divided by number of available beds	
		Admissions: inpatient care; acute care (number of people admitted as a percentage of the total population)	
		Discharge rates (/100,000 population) by case mix	

	WHO HFA	Discharges: by disease group Number of all hospital admissions (or discharges) Admissions in acute hospitals	refer to 'hospitalisations'. It may be that the various terms are used somewhat loosely, as most of the indicators have not been properly specified/defined yet.
	HIEMS	Number of discharges, day cases excluded (both health care facilities and overnight patients data sets)	
	Healthy People 2010	Some indicators refer to 'hospitalisations' others to 'hospital discharges'—see under 'diagnosis', below	
	CIHI Roadmap	Some indicators refer to 'hospitalisations', or hospitalisation rates (per 100,000 pop); one refers to 'patients hospitalised'	
Frequency and timeliness	WHO HFA	Number of all cases of chronic obstructive pulmonary diseases (cumulative number of patients at end of calendar year)	Only one indicator specifies the time period to which it relates; possibly the calendar year is generally assumed as the basic temporal unit for most indicators.

Inventory data item	Project	Indicators	Comments
Geographic information—patients	HIEMS	NUTS levels 0, 1, 2 (both health care facilities and (?) overnight patients data sets)	None of the indicators considered require information on patients' place of residence
Geographic information—hospitals	HIEMS	NUTS levels 0, 1, 2 (unclear whether place of residence or place of treatment intended—probably the latter)	None of the indicators considered require information on place of treatment
Age/date of birth	ECHI	Live births by mother's age group	Many indicators relate to specified target age groups, though no standard age breakdown emerges. Several indicators require expression as age standardised rates.
		Aged mothers; teenaged mothers (% live births in specified age groups)	
		Induced abortions (rates per 1000 live births by mother's age)	
	WHO HFA	Number of abortions: all ages; under 20; 35+	
		Number of live births: all ages; under 20; 35+	
	HIEMS	Age group—standard grouping is 0-<1, 1-4, then 5 year age groups up to 95 and over (overnight patients data set)	
	Healthy People 2010	A number of the indicators that relate to particular diagnoses/external causes specify age groups: under 5, under 18, 15-17, 5–64, 18–64, 6–97, 65 and older, 65-74, 75-84, 85 years and over. Several of the indicators are to be expressed as rate per 100,000 pop, age adjusted.	
	CIHI Roadmap	A number of the indicators specify age groups: 20 and over; 65 and over. Many are to be expressed as age standardised rates.	
	HOPE	Age of patients	
Gender	HIEMS	Sex (overnight patients data set)	Very few indicators require breakdown by gender
	Healthy People 2010	Number of hospitaizations for hip fractures among {females; males} aged 65 years and older (rate per 100,000 pop)	
		Number of hospital discharges for females with any listed diagnosis of maternal complications during labor/delivery (rate per 100 deliveries)	
	CIHI Roadmap	Hysterectomy provided to inpatients in acute care hospitals, per 100,000 women aged 20+ (age standardised)	
	HOPE	Number of interventions (by sex):	

Social class/deprivation	—	—	No indicators require information on social class/deprivation

Inventory data item	Project	Indicators	Comments
Length of stay	ECHI	Beddays (acute care)	Several indicators refer to average length of stay, sometimes by diagnosis; the related concept of beddays also comes up quite frequently
		Average length of stay: acute care; for key diagnostic groups	
	OECD Health Data 2001	Average length of stay (calculated as number of days stayed divided by number of separations): inpatient; acute; by principle diagnosis, grouped using ICD chapters; by casemix	
		In-patient care beddays: total; acute care	
	HIEMS	Bed days; product of number of patients discharged and average LOS (health care facilities data set)	
		Hospital days (overnight patients data set)	
	WHO HFA	Number of mental health patients in hospital at the end of the year with length of stay of 365 or more days	
		Average length of stay: all hospitals; acute care hospitals	
	CIHI Roadmap	Average number of actual days in acute care hospitals compared to expected length of stay	
	HOPE	Length of stay	
Type of admission	Healthy People 2010	Several of the indicators specify number of emergency department visits, which 'type of admission' may possibly be used to identify	No indicators specifically call for information on type of admission
Diagnoses	ECHI	Incidence/prevalence of particular disorders (list of suggested groups given)	All the indicator sets examined include indicators that require some diagnosis information. A broad distinction can be drawn between: ➢ indicators that require breakdown by broad diagnosis groups (e.g. ICD chapters) ➢ indicators that focus on an
		Induced abortions (rates per 1000 live births by mother's age)	
		Discharges by disease group (list of suggested groups given)	
		30 days in-hospital mortality (for certain conditions)	
		Incidence of end-stage renal failure	
	OECD Health Data 2001	Average length of stay by diagnostic categories grouped using ICD chapters (principle diagnosis)	
		Discharge rates (/100,000 population) by diagnostic categories	

	WHO HFA	Discharges: by disease group (mostly at broad ICD 9/10 chapter level) Number of mental health patients in hospital at the end of the year with length of stay of 365 or more days Number of all cases of chronic obstructive pulmonary diseases (cumulative number of patients at end of calendar year) Number of abortions: all ages; under 20; 35+ Number of caesarean sections Number of births with: congenital anomalies; Down's syndrome Surgical wound infection rate (%), all operations	individual diagnosis or a small group of diagnoses (e.g. pneumonia and influenza), as 'indicators' in the truer sense. Some indicators relate to 'principal diagnosis' or 'any listed diagnosis', while others do not specify. Some indicators specify whether 'principal diagnosis' or 'any listed diagnosis' should be used, but many don't.

Inventory data item	Project	Indicators	Comments
Diagnoses (cont'd)	HIEMS	ICD code (overnight patients data set)	
	Healthy People 2010	Number of hospitalisations for three ambulatory-care-sensitive conditions: asthma (persons aged under 18 years; rate per 100,000 pop); uncontrolled diabetes (18–64 years; rate per 100,000 pop); immunization-preventable pneumonia or influenza (65 and older; rate per 10,000 pop)—principal diagnosis only	
		Number of discharges from short-stay hospitals among persons aged 65 years and older for vertebral fractures	
		Number of discharges of persons with diabetes as any listed diagnosis and amputation of the lower limb as any listed procedure (rate per 1000 pop)	
		Number of discharges among adults aged {65-74; 75-84; 85 years and over} with a principal diagnosis of congestive heart failure (rate per 1000 pop)	
		Number of hospitalizations with uncomplicated ulcers or ulcers complicated by bleeding or perforation as the principal diagnosis (rate per 100,000 pop)	
		Number of: hospital-acquired indwelling urinary catheter-associated urinary tract infections; hospital-acquired central line-associated bloodstream infections; hospital-acquired ventilator-associated pneumonia infections, among intensive care unit patients (rate per 1000 days' use)	
		Number of hospitalizations for: nonfatal head injuries; nonfatal spinal cord injuries (principal diagnosis; rate per 100,000 pop, age adjusted)	
		Number of hospitaizations for hip fractures among {females; males} aged 65 years and older (rate per 100,000 pop)	
		Number of discharges for females with any listed diagnosis of maternal complications during labor/delivery (rate per 100 deliveries)	
		Number of visits to ambulatory care facilities with a diagnosis of otitis media among children and adolescents aged 17 years and under (rate per 1000 pop)	

Inventory data item	Project	Indicators	
Diagnoses (cont'd)	CIHI Roadmap	Proportion of women who have previously received a caesarean section, who give birth via vaginal delivery in an acute care hospital	
		Acute care hospitalisation rate for pneumonia and influenza, rate per 100,000 pop aged 65+ (age standardised)	
		Inpatient acute care hospitalisation rate for conditions where appropriate ambulatory care prevents or reduces need for admission to hospital (age standardised)	
		Acute care hospitalisation rate for fracture of the hip per 100,000 pop aged 65+ (age-standardised)	
	HOPE	Acute myocardiac infarction	
		Stroke	
	Diabetes indicators	Annual incidence of: stroke; myocardial infarction' hypoglycaemia necessitating hospitalisation; hyperglycaemia necessitating hospitalisation	
Operative procedures	ECHI	Surgical inpatients; day cases: total; for key procedures (CABG; hip replacement; knee replacement; cataract operation; caesarean section; other important procedures)	All the indicator sets examined include indicators that require information on procedures.
		Number of inappropriate interventions/surgery (shortlist to be agreed)	Several indicators require only the information that some procedure was performed—essentially a procedure 'flag'. Others identify key procedures, and there are some that come up several times (e.g. CABG, hip and knee replacement, caesarean section). Only OECD includes an indicator that requires breakdown by broad ICD-9-CM groupings.
		Variation in number of specific interventions (focus on those with high variation between countries)	
	OECD Health Data 2001	Total surgical inpatients; day cases	
		Number of inpatient surgical procedures: ICD-9-CM groupings; casemix (DRG) (lists provided)	
		Number of transplants per 100,000 population (bone marrow; heart; kidney; liver; lung)	
	WHO HFA	Number of in-patient surgical procedures per year	
		Surgical wound infection rate (%), all operations	
	HIEMS	Surgery: discharge with or without surgery (overnight patients data set)	
	Healthy People 2010	Number of discharges of persons with diabetes as any listed diagnosis and amputation of the lower limb as any listed procedure (rate per 1000 pop)	

Inventory data item	Project	Indicators	
Operative procedures (cont'd)	CIHI Roadmap	Proportion of women delivering babies by caesarean section (stillbirths excluded)	
		CABG surgery performed on inpatients in acute care hospitals, rate per 100,000 pop aged 20+ (age standardised)	
		Hip replacement surgery performed on inpatients in acute care hospitals, rate per 100,000 pop (age standardised)	
		Knee replacement surgery performed on inpatients in acute care hospitals, rate per 100,000 pop (age standardised)	
		Hysterectomy provided to inpatients in acute care hospitals, per 100,000 women aged 20+ (age standardised)	
	HOPE	Number of interventions (by sex): hip replacement; coronary artery bypass graft (CABG)	
	Diabetes indicators	Annual incidence of: amputations below the ankle; amputations above the ankle	
Specialties	WHO HFA	Number of beds in acute hospitals assigned to: medical specialties; surgical specialties; obs and gynae specialties; paediatric specialties	Information on specialty is not required for many indicators, and no indicators require a full breakdown by specialty
	Healthy People 2010	Several of the indicators specify 'among intensive care unit patients (rate per 1000 days' use)' or 'number of emergency department visits'	
Source of admission	—	—	No indicators require information on source of admission
Destination on discharge	ECHI	30 days in-hospital mortality (for certain conditions)	No indicators require information on destination on discharge specifically; information on hospital deaths may be relevant for some indicators.
	HOPE	Mortality	

Data items <u>not</u> on inventory	Project	Indicators	Comments
Beds	ECHI	Hospital beds: total; acute care; private inpatient; psychiatric care; nursing/elderly home care	Several indicators require information on hospital beds, often broken down by broad care types (e.g. acute, psychiatric, long-term care); they relate to health care resource availability
	OECD Health Data 2001	In-patient care beds: total; acute care; psychiatric care; long-term care	
		Acute care turnover rate: number of admissions/discharges divided by number of available beds	

	WHO HFA	Number of hospital beds: total; acute; psychiatric; nursing homes/homes for the elderly; private
		Number of beds in acute hospitals assigned to: medical specialties; surgical specialties; obs and gynae specialties; paediatric specialties
	HIEMS	Beds (health care facilities data set)

Data items not on inventory	Project	Indicators	
Occupancy rate	ECHI	Occupancy rate: inpatient care; acute care	Occupancy rate indicators relate to health care utilisation and require information on numbers of beds
	OECD Health Data 2001	In-patient care occupancy rate (occupied beds divided by available beds): total; acute care	
	WHO HFA	Bed occupancy rate (%) in acute hospitals	
Hospital staff ratio	ECHI	Staff/bed (acute care)	In addition to these ECHI staff/bed ratio indicators, several of the indicator sets include medical workforce indicators that require information on staff numbers
		Nursing staff/bed (acute care)	
External causes	ECHI	Health promotion behaviours (e.g. attempted suicide)	Indicators that require information on external cause generally relate to determinants of health
		Accidents related to work (incidence; deaths)	
		Violence	
		Surgical wound infection	
	Healthy People 2010	Number of: hospital-acquired indwelling urinary catheter-associated urinary tract infections; hospital-acquired central line-associated bloodstream infections; hospital-acquired ventilator-associated pneumonia infections, among intensive care unit patients (rate per 1000 days' use)	
		Number of: nonfatal firearm-related cases treated in US hospital emergency department records (rate per 100,000 pop); emergency room visits for nonfatal poisonings (rate per 100,000 pop, age adjusted); emergency department visits due to injury or poisoning (rate per 1000 population, age adjusted)	
		Number of emergency department visits for dog bite injuries (rate per 100,000 population, age adjusted)	
		Number of work-related injuries among workers aged 15-17 recorded in hospital emergency department records	
		Number of emergency department visits by patients aged 6 to 97 years that were due to the use of illegal drugs or the nonmedical use of legal drugs (Number)	
	CIHI Roadmap	Acute care inpatient hospitalisation due to injuries resulting from transfer of energy, rate per 100,000 pop (age standardised)	
Casemix	OECD Health Data 2001	Average length of stay: by casemix	Breakdown by casemix groupings is required for some indicators, in addition to breakdown by diagnoses and procedures.
		Discharge rates (/100,000 population) by case mix	
	CIHI Roadmap	Percentage of patients hospitalised in acute care facilities for conditions or procedures that often allow ambulatory treatment not requiring admission; derived using casemix group methodology	

Data items not on inventory	Project	Indicators	
Waiting times	ECHI	Average waiting lists/times	
	HOPE	Waiting time	
Readmission rates	ECHI	28 day readmission rate	
	HOPE	Readmission	
Birth data	WHO HFA	Number of dead-born foetuses with weight of 1000 g or more; Number of early neonatal deaths with birth-weight of 1000g or more; Number of live births with birth-weight of 1000 g or more; Number of early neonatal deaths, national criteria; Number of dead-born foetuses, national criteria ; Number of maternal deaths	Indicators concerning birth/neonatal data are probably best addressed using data held on registers, but hospital data may be relevant in the absence of comparable register data
		Number of abortions: all ages; under 20; 35+	
		Number of live births: all ages; under 20; 35+	
		Number of births with: congenital anomalies; Down's syndrome	
		% of live births weighing 2500g or more	
	Healthy People 2010	Number of live births at very low birth weight subspecialty facilities (level III facilities) (per cent)	
		Number of births delivered by cesarean section to low-risk females giving birth for the first time (per cent)	
Insurance coverage	ECHI	Insurance coverage	
Other information	CIHI Roadmap	Percentage of inpatient care days where a physician has indicated that a patient occupying an acute care hospital bed was well enough to have been cared for elsewhere	
		Average number of actual days in acute care hospitals compared to expected length of stay	

Appendix: indicator sets/projects considered

Brief notes on the indicator sets/projects considered are followed by details of indicators (only those that relate to hospital data) and, in some cases, diagnosis and procedure groupings for each project.

ECHI

The European Community Health Indicators (ECHI) Project final report was produced in Feb 2001. It contains a list of proposed health indicators, selected on the basis of explicit criteria and organised under the following main headings: Demography and socio-economic factors; Health status; Determinants of health; Health systems. The majority of indicators potentially relevant to hospital data are under 'Health systems: health care utilisation'. Operational definitions have not yet been developed.

OECD Health Data

OECD Health Data 2001 presents an analysis of health data from 30 countries, under the following categories: health status; health care resources; health care utilisation; expenditure on health; financing and remuneration; social protection; pharmaceutical market; non-medical determinants of health; demographic references; economic references. It is available on CD rom. http://www1.oecd.org/els/health/software/ (click on definitions, sources and methods)

WHO Health for All

The WHO Regional Office for Europe (WHO/EURO) regularly collects basic health statistics from WHO European Member States and disseminates them mainly in the form of European health for all database (HFA-DB). These data are also used in various publications including 'The European Health Report'. Indicators have been developed for health status and trend analysis in the international context. They are grouped under the following broad headings:
Basic demographic and socio-economic indicators.
Health status indicators:

- mortality-based indicators
- morbidity indicators
- disability and other measurements of health status.

Health care indicators:

- resources and cost related input indicators
- utilization related process indicators
- health care quality and outcome related indicators.

Lifestyles related indicators.
The indicators in this Appendix are selected from those listed in Annex 2 of 'Guidelines for the annual provision of selected statistical data to the European health for all Database of the WHO Regional Office for Europe', 2001. Definitions are given in Appendix 3.

HIEMS

The Health Information Exchange and Monitoring System is essentially a technical tool—a database and online data dictionary. Currently it holds test data in five areas: demography; mortality; overnight patients; health care facilities; EHLASS. While there are no pre-calculated indicators, it is possible to use the 'raw aggregated data' on the database to produce tabulations of the available variables, using the available dimensions. Currently, data on health care facilities and overnight patients are very limited in scope. The test data have also highlighted problems with comparability between member states. 'Variables' can be expressed either as a number or a ratio (using population data).

Diabetes indicators

In September 2001 a provisional list of indicators was agreed by the EU Diabetes Indicator Project (EUDIP)—an HMP project. National level data are to be provided by mid-January 2002. The approximately 30 indicators are grouped under the following headings: Risk factors for Type 2 diabetes; Epidemiology of diabetes; Risk factors for complications (people with diabetes); Epidemiology of complications; Mortality. Only six of the indicators relate to hospital data.

HOPE

The European Health Care Data project started in December 1997. One of the aims of the project is to develop databases with a minimum set of key indicators to measure health care trends with a particular focus on hospital data. It is unclear from the documents considered whether any indicators have been developed, however, some data collection has begun. The data items listed in this Appendix are those set out in a recent request received by the Department of Health Statistics Division. Full operational definitions were not given in that request.

Healthy People 2010 (USA)

The Healthy People process began in 1979, with the setting of national goals for reducing premature deaths and preserving independence for older adults. The Healthy People 2000 report provides detailed information on progress against the several hundred objectives set at the beginning of the 1990s, based on information from range of data sources. Healthy People 2010: Objectives for Improving Health was released in Jan 2000. Its two broad goals are (1) Increase quality and years of healthy life, and (2) eliminate health disparities. It identifies 467 objectives in 28 focus areas (access to quality health services, cancer, health communication, etc.). Operational definitions have not yet been specified for all the objectives. 10 'leading health indicators' have been selected from among the 467 objectives; these are intended to provide a gauge of the nation's well-being. Healthy People is owned by the National Center for Health Statistics, part of the Centers for Disease Control (USA). http://www.cdc.gov/nchs/hphome.htm

Canadian Institute of Health Information: Roadmap initiative. Health Indicators Project

The Roadmap Initiative, lead by the Canadian Institute for Health Information, is a four-year action plan to modernise Canada's health information system. Several projects have been carried out under the Initiative. The Health Indicators Project is one of them; its main goal is to develop a consensus on a core set of measures from existing data that reflect health status, determinants, quality of services and characteristics of the community or health system that provide useful contextual information. A set of indicators has been developed (with operational definitions and sources) and data are being reported against these indicators.
http://www.cihi.ca/Roadmap/Health_Ind/indicators2000/apr2001/tocapr2001.shtml

ECHI indicators

Suggested indicators	Notes
1.1 Population	
Live births (by mother's age group)	
Aged mothers; teenage mothers (e.g. % live births in specified age groups)	
2.2 Morbidity, disease specific	
Incidence/prevalence of diseases	See suggested list of large-impact diseases/ disorders, and diseases related to specific determinants, prevention programs etc (sheet 'ECHI diseases')
3.2.3 Determinants of health	
Induced abortions (rates per 1000 live births by mother's age)	
Other health promotion behaviours (attempted suicide suggested)	
3.3 Living and working conditions	
Accidents related to work (incidence; deaths)	Ref Eurostat; EFIL WC. Could pick up through external cause codes
Violence	Could pick up through external cause codes
4: Health Systems	
4.2 Healthcare resources	
Total hospital beds	
Acute care hospital beds	
Hospital beds private inpatient	
Psychiatric care beds	
Nursing/elderly home care beds	
Hospital staff ratio: acute care (staff/bed)	
Nurses staff ratio: acute care (staff/bed)	
4.3 Healthcare utilisation	
Beddays, acute care	
Occupancy rate, inpatient care	
Occupancy rate, acute care	
ALOS inpatient	
ALOS acute, for a few key diagnostic groups	
Discharges total	
Discharges, by disease group	Report suggests diseases/disorders for indicators of disease-specific morbidity (see sheet 'ECHI diseases')
Total surgical inpatients; total surgical daycases	
CABG (Coronary Artery Bypass Graft)	
PTCA (Percutaneous Transluminal Coronary Angioplasty)	
Hip replacement	
Knee replacement	
Cataract operation	
Caesarean section	
Other surgical procedures considered important	
4.4 Health expenditures and financing	
Insurance coverage	Hospital data may be able to provide info on insurance coverage of inpatients
4.5 Health care quality/performance	
Waiting lists/ times (average)	
No. of inappropriate interventions/surgery (shortlist to be agreed)	

ECHI indicators (cont'd)

Suggested indicators	Notes
Variations in number of specific interventions/surgery (shortlist to be agreed; select few with high variance between countries)	
28-day readmission rate	
30 days in-hospital mortality (for certain conditions)	
Surgical wound infection (incidence)	
Incidence of end-stage renal failure	

ECHI suggested list of 'large-impact' diseases/disorders

HIV/AIDS	Heart failure
Tuberculosis	Cerebrovascular accident
Sexually transmitted disease	COPD
All cancers	Asthma
Lung etc.	Decayed etc. teeth
Breast cancer	Musculoskeletal disorders
Cervix uteri cancer	Congenital anomalies
Colorectal cancer	Down's syndrome
Prostate cancer	Road traffic injuries
Melanoma and other skin cancer	Occupational injuries
Diabetes	Home/leisure injuries
Dementia/Alzheimer	**Diseases related to specific determinants:**
Depression	Communicable diseases in vaccination schemes
Generalised anxiety disorder	Water- and food-borne diseases
Alcohol related disorders	Alcohol-related traffic accidents
Ischaemic heart disease	Occupational disease
Acute myocardial infarction	Creutzfeldt-Jacob disease

OECD Health Data

Category	Indicator	Definition notes (more complete definitions are given)
2. Health care resources: in-patient beds	Total in-patient care beds	Average daily census or mid-year count of the available beds in all public and private in-patient institutions, including acute care, psychiatric care and nursing care
	Acute care beds	
	Psychiatric care beds	
	Long term care beds	
3. Health care utilisation: inpatient utilisation	In-patient care beddays, Acute care beddays	A bedday is a day during which a person is confined to a bed and in which the patient stays overnight in a hospital.
	In-patient care occupancy rate	Occupancy rate: Number of beds effectively occupied in in-patient or acute care institutions divided by the number of available beds and multiplied by 100.
	Acute care occupancy rate	
	Acute care turnover rate	Number of acute admissions (or discharges) divided by the number of available acute care beds.
	Admissions: in-patient care	Admissions: The number of people who were admitted and stayed at least one night in an in-patient institution divided by the population and multiplied by 100.
	Admissions: acute care	
3. Health care utilisation: Average length of stay	Average length of stay: in-patient and acute care	Average length of stay is computed by dividing the number of days stayed (from the date of admission in an in-patient institution) by the number of separations (discharges + deaths) during the year.
	Average length of stay by diagnostic categories	Diagnostic chapters (using principal diagnosis) have been defined according to both the International Classification Of Diseases, 9th revision and 10th revision. (See sheet 'OECD diags')
	Average length of stay by case mix	(See sheet 'OECD diags')
3. Health care utilisation: Discharge rates	Discharge rates by diagnostic categories	Discharge is the formal release of an in-patient by an in-patient or acute care institution. The discharge rates are expressed by the number per 100 000 population.
	Discharge rates by case mix	
3. Health care utilisation: Surgical procedures	Total surgical day cases	Patients who are given invasive surgical treatment (elective surgeries only) which are carried out in a dedicated surgical unit or part of a hospital and which lead to discharge on the day of the operation.
	Total surgical in-patients	Patients who are given invasive surgical treatment, whether on an emergency or elective basis, and who stay over at least one night in an in-patient institution
	Surgical procedures by ICD-9-CM	Selected surgical procedures are listed according to the classification, either ICD-9-CM or DRG. Data collected is the number of in-patient procedures. (See sheet 'OECD procs')
	Surgical procedures by case mix	(See sheet 'OECD procs')
	Transplants	The number of transplants conducted according to national and local registries, usually measured as procedures per 100 000 population. Transplants are collected for: Bone marrow; Heart; Kidney; Liver; Lung

OECD Health Data: diagnosis categories (ICD–9)

All causes (001-999)	Ulcers (531-534)
Infectious & parasitic diseases (001-139)	Appendicitis (540-543)
HIV infection (042-044)	Inguinal and femoral hernia (550)
Malignant neoplasm (140-208)	Chronic liver disease and cirrhosis (571)
Malignant neoplasm of colon, rectum, rectosigmoid junction and anus (153-154)	Cholelithiasis (574)
Malignant neoplasms of broncho-lung-trachea (162)	Diseases of the genito-urinary system (580-629)
Malignant neoplasm of female breast (174)	Acute pyeleonephritis (590.1)
Malignant neoplasm of prostate (185)	Calculus of kidney and ureter (592)
Endocrine and metabolic diseases (240-279)	Complication of pregnancy/childbirth (630-676)
Diabetes mellitus (250)	Normal delivery (650)
Diseases of the blood (280-289)	Diseases of skin & subcutaneous tissue (680-709)
Mental disorders (290-319)	Infections of skin (680-686)
Diseases of the nervous system (320-389)	Diseases of musculo-skeletal system (710-739)
Senile cataract (366.1)	Osteoarthrosis (715)
Otitis media (381-382)	Intervertebral disc disorders (722)
Diseases of the circulatory system (390-459)	Osteoporosis (733.0)
Ischaemic heart disease (410-414)	Congenital anomalies (740-759)
Acute myocardial infarction (410)	Perinatal conditions (760-779)
Cerebrovascular disease (430-438)	Symptoms & ill-defined conditions (780-799)
Diseases of the respiratory system (460-519)	External causes of injury and poisoning (800-999)
Pneumonia and influenza (480-487)	Fracture of neck of femur (820)
Bronchitis, asthma and emphysema (490-493)	Sprains and strains of back (846-847)
Chronic obstructive pulmonary disease (490-496)	All other categories not elsewhere classified
Diseases of the digestive system (520-579)	

OECD Health Data: procedure categories

Operations on the nervous system (01-05)	Operations on the digestive system (42-54)
Operations on the endocrine system (06-07)	Appendectomy (47.0)
Operations on the eye (08-16)	Cholecystectomy (51.2)
Cataract surgery (13.1-13.7)	Laparoscopic cholecystectomy (51.23)
Operations on the ear (18-20)	Inguinal and femoral hernia (53.0-53.3)
Operations on nose, mouth, pharynx (21-29)	Operations on the urinary system (55-59)
Tonsillectomy without adenoidectomy (28.2)	Operations on the male genital organs (60-64)
Tonsillectomy with adenoidectomy (28.3)	Prostatectomy (60.2-60.6)
Operations on the respiratory system (30-34)	Operations on the female genital organs (65-71)
Lung lobectomy/ pneumonectomy (32.4-32.5)	Hysterectomy (68.5)
Operations on cardiovascular system (35-39)	Caesarean section (74.0-74.2, 74.4, 74.99)
Coronary angioplasty (36.0)	Operations on the musculoskeletal system (76-84)
Coronary bypass (36.1)	Knee arthroscopy (80.26, 80.6)
Cardiac catheterisation (37.21-37.23)	Total hip replacement (81.51-81.53)
Carotid endarectomy (38.12)	Operations on the integumentary system (85-86)
Operations on hemic & lymphatic system (40-41)	Mastectomy (85.4)

OECD Health Data: diagnosis categories (Casemix)

Admit for renal dialysis (317)	Fractures of the femur (235)
Angina pectoris (140)	Fractures of the hip and pelvis (236)
Bronchitis and asthma (96-98)	Medical back problems (243)
Chest pain (143)	Mental diseases and disorders
Chronic obstru0.ctive pulmonary diseases (88)	Neoplastic diseases and disorders
Circulatory disorders w AMI & C.V comp disch alive (121)	Normal newborn (391)
Circulatory disorders w AMI w/o C.V comp disch alive (122)	Prematurity with and without major problems (387-388)
Circulatory disorders w AMI, expired (123)	Specific cerebrovascular disorders except TIA (14)
Diabetes age> 35 (294)	Transient ischaemic attack (15)
Diabetes, 0-35 years (295)	Vaginal delivery w/o complicating diagnoses (373)

OECD Health Data: procedure categories (Casemix)

Cataract surgery (039)	Knee arthroscopy (232)
Tonsillectomy and/or adenoidectomy (059-060)	Hip and femur procedures (210-211)
Lung lobectomy/pneumonectomy	Mastectomy (257-258)
Coronary bypass surgery (106-107)	Prostatectomy (306-307)
Coronary angioplasty (112)	Hysterectomy
Inguinal and femoral hernia (161-162)	Caesarean section (370-371)
Appendectomy (164-167)	Laparoscopic cholecystectomy (493-494)
Cholecystectomy (195-198)	

WHO Health for All

Indicators	Notes
2. Health status	
a) Mortality	
Number of dead-born fetuses with weight of 1000 g or more	
Number of early neonatal deaths with birth-weight of 1000 g or more	
Number of live births with birth-weight of 1000 g or more	
Number of early neonatal deaths, national criteria	
Number of dead-born fetuses, national criteria	
Number of maternal deaths	
b) Estimates of incidence and prevalence	Transfer to another department of the same hospital not considered a discharge; day cases not included
Hospital discharges, infectious and parasitic diseases	Chapter I of ICD-9/10
Hospital discharges: all cancers	Chapter II of ICD-9/10
Hospital discharges: mental and behavioural disorders	Chapter V of ICD-9/10.
Number of mental health patients in hospital at the end of the year with length of stay of 365 or more days	
Hospital discharges: diseases of the circulatory system	Chapter VII of ICD-9 or Chapter IX of ICD-10
Hospital discharges: ischaemic heart disease	ICD-9: 410-414 or ICD-10: I20-I25
Hospital discharges: cerebrovascular diseases	ICD-9: 430-438 or ICD-10: I60-I69
Hospital discharges: diseases of the respiratory system	Chapter VIII of ICD-9 or chapter X of ICD-10
Number of all cases of chronic obstructive pulmonary diseases (prevalence)	Cumulative number of patients with chronic obstructive pulmonary diseases (ICD-9: 490-496; ICD-10: J40-J47) at the end of the calendar year.
Hospital discharges: diseases of the digestive system	Chapter IX of ICD-9 and chapter XI of ICD-10.
Hospital discharges: diseases of the musculoskeletal system and connective tissue	Chapter XIII of ICD-9/10
Hospital discharges: injury and poisoning	Chapter XVII of ICD-9 and chapter XIX of ICD-10
5. Healthcare	
a) Healthcare facilities	
Total number of hospital beds	
Number of hospital beds in acute hospital departments	
Psychiatric hospital beds	
Number of beds in nursing homes and homes for the elderly	
Number of private hospital beds	
Number of beds in acute care hospitals assigned to the medical group of specialties	This group includes most of clinical specialties excluding Surgery, Gynaecology & obstetrics, Paediatrics and Psychiatry
Number of beds in acute care hospitals assigned to the surgical specialties	Includes General surgery, Neurological surgery, Plastic surgery, other types of surgery, Anaesthesiology and Intensive care.
Number of beds in acute care hospitals assigned to the obstetric&gynaecology specialties	Includes Obstetric and Gynaecology specialties.
Number of beds in acute care hospitals assigned to the paediatric specialties	Beds assigned for the treatment of children.
c) Healthcare utilisation	
Number of all hospital admissions (or discharges)	
Admissions in acute hospitals	
Average length of stay, all hospitals	
Average length of stay, acute care hospitals	
Bed occupancy rate (%) in acute hospitals	
Average number of outpatient contacts per year per person	

WHO Health for All (cont'd)

Indicators	Notes
Number of in-patient surgical procedures per year	OECD definition adopted: in-patient surgery is a surgical operation or procedure that is performed with an overnight stay in an in-patient institution
d) Maternal and child health and services	
Number of abortions, all ages	
Number of abortions, age under 20	
Number of live births, mothers age under 20	
Number of abortions, age 35+	
Number of live births, mothers age 35+	
Number of caesarean sections	
% of live births weighing 2500 g or more	
Number of births with congenital anomalies	
Number of births with Down's syndrome	
e) Selected quality of care indicators	
Surgical wound infection rate (%), all operations	ICD-9: 998.5 or ICD-10: T81.4

HIEMS

Health care facilities		
Dimensions:	Regional hierarchy	NUTS levels 0, 1, 2
	Reporting year	
	Hospital type	Short term care or long term care, plus subcategories under each
Variables:	Beds	
	Bed days	Generally the product of the number of patients discharged and the average length of stay
	Discharges	Day cases excluded; transfers within a facility do not constitute discharges
Overnight patients		
Dimensions:	Regional hierarchy	NUTS levels 0, 1, 2; unclear whether place of residence or place of treatment
	Reporting year	
	Sex	
	Age group	
	ICD code	
	Surgery	Discharge with or without surgery
Variables:	Discharges	See note above
	Hospital days	Day of admission and day of discharge each counted as a full day

Diabetes indicators

Epidemiology of complications	
Vascular disease:	Annual incidence of amputations below the ankle
	Annual incidence of amputations above the ankle
	Annual incidence of stroke
	Annual incidence of myocardial infarction
Acute complications:	Annual incidence of hypoglycaemia necessitating hospitalisation
	Annual incidence of hyperglycaemia necessitating hospitalisation

HOPE

Data are currently being collected for the following conditions/procedures:
Hip replacement
Acute myocardiac infarction
Stroke
Coronary artery bypass graft (CABG)

The following data items have been requested:
Number of interventions (by sex)
Length of stay
Number of surgeons
Age of patients
Waiting time
Readmission
Mortality

Healthy People 2010 (USA)

No.	Objective	Definition
1.9	Reduce hospitalization rates for three ambulatory-care-sensitive conditions: paediatric asthma, uncontrolled diabetes and immunization-preventable pneumonia and influenza	
1.9a	Paediatric asthma - persons under age 18 years	No. of hospitalizations among persons under 18 years with asthma (ICD-9-CM 493) as the principal diagnosis (rate per 100,000 pop)
1.9b	Uncontrolled disabetes - persons aged 18 to 64 years	No. of hospitalizations among persons aged 18-64 years with uncontrolled diabetes (ICD-9-CM 250.02-250.03, 250.10-250.13, 250.20-250.23, 250.30-250.33) as the principal diagnosis (rate per 100,000 pop)
1.9c	Immunization-preventable pneumonia or influenza - persons aged 65 years and over	No. of hospitalizations among persons aged 65 years and older with preventable pneumonia or influenza (ICD-9-CM 481, 487) as the principal diagnosis (rate per 10,000 pop)
2.10	Reduce the proportion of adults who are hospitaized for vertebral fractures associated with osteoporosis	Number of discharges from short-stay hospitals among persons aged 65 years and older for vertebral fractures (ICD-9-CM 805.0, 805.2, 805.4, 805.8 in any diagnosis field) (rate per 10,000 pop)
5.10	Reduce the rate of lower extremity amputations in persons with diabetes	Number of hospital discharges among US civilian persons with diabetes (ICD-9-CM 250) as any listed diagnosis and amputation of the lower limb (ICD-9-CM 84.1) as any listed procedure (rate per 1000 pop)
12.6	Reduce hospitalizations of older adults with congestive heart failure as the principal diagnosis	Number of discharges among adults aged {65-74; 75-84; 85 years and over} with a principal diagnosis of congestive heart failure (ICD-9-CM 428.0) (rate per 1000 pop)
14.17	Reduce hospitalizations caused by peptic ulcer disease in the United States	Number of hospitalizations with uncomplicated ulcersor ulcers complicated by bleeding or perforation as the principal diagnosis (ICD-9-CM 531-534) (rate per 100,000 pop)
14.20	Reduce hospital-acquired infections in intensive care unit patients	
14.20a	Catheter-associated urinary tract infection	Number of hospital-acquired indwelling urinary catheter-associated urinary tract infections among intensive care inpatients (rate per 1000 days' use)
14.20b	Central line-associated bloodstream infection	Number of hospital-acquired central line-associated bloodstream infections among intensive care unit patients (rate per 1000 days' use)
14.20c	Ventilator-associated pneumonia	Number of hospital-acquired Ventilator-associated pneumonia infections among intensive care unit patients (rate per 1000 days' use)
15.1	Reduce hospitalizations for nonfatal head injuries	Number of hospitaizations for nonfatal head injuries (principal diagnosis ICD-9-CM 800-1, 803-4, 850-4, 870-3, 925) (rate per 100,000 pop, age adjusted)
15.2	Reduce hospitalizations for nonfatal spinal cord injuries	Number of hospitaizations for nonfatal spinal cord injuries (principal diagnosis ICD-9-CM 806, 952) (rate per 100,000 pop, age adjusted)
15.5	Reduce nonfatal firearm-related injuries	Number of nonfatal firearm-related cases treated in US hospital emergency department records (rate per 100,000 pop)

Healthy People 2010 (USA) (cont'd)

No.	Objective	Definition
15.7	Reduce nonfatal poisonings	Number of emergency room visits for nonfatal poisonings (first listed ICD-9-CM E850-69, E950-2, E962, E972, E980-2) (rate per 100,000 pop, age adjusted)
15.12	Reduce hospital emergency department visits caused by injuries	Number of emergency department visits due to injury or poisoning (rate per 1000 population, age adjusted)
15.28	Reduce hip fractures among older adults	Number of hospitaizations for hip fractures (principal diagnosis ICD-9-CM 820) among {females; males} aged 65 years and older (rate per 100,000 pop)
15.30	Reduce hospital emergency department visits for nonfatal dog bite injuries	Number of emergency department visits for dog bite injuries (rate per 100,000 population, age adjusted)
16.5	Reduce maternal illness and complications due to pregnancy	Number of hospital discharges for females with any listed diagnosis of maternal complications during labor/delivery (rate per 100 deliveries)
16.8	Increase the proportion of very low birth weight infants born at level III hospitals or subspecialty perinatal centers	Number of live births at very low birth weight subspecialty facilities (level III facilities) (per cent)
16.9	Reduce cesarean births among low-risk (full-term, singleton, vertex presentation) women	Number of births delivered by cesarean section to low-risk females giving birth for the first time (per cent)
20.2h	Reduce work-related injuries resulting in medical treatment, lost time from work, or restricted work activity: adolescent workers	Number of work-related injuries among workers aged 15-17 recorded in hospital emergency department records
24.2	Reduce hospitalization for asthma	Number of discharges with principal diagnosis of asthma (ICD-9-CM 493) among people aged {under 5; 5-64;65 and over} (rate per 10,000 pop)
24.3	Reduce hospital emergency visits for asthma	Number of visits to an emergency department with principal diagnosis of asthma (ICD-9-CM 493) among people aged {under 5; 5-64;65 and over} (rate per 10,000 pop)
26.4	Reduce drug-related hospital emergency department visits	Number of emergency department visits by patients aged 6 to 97 years that were due to the use of illegal drugs or the nonmedical use of legal drugs (Number)
28.12	Reduce otitis media in children and adolescents	Number fo visits to ambulatory care facilities with a diagnosis of otitis media (ICD-9-CM 381.0-381.4, 382) among children and adolescents aged 17 years and under (rate per 1000 pop)

Canadian Institute of Health Information: Roadmap initiative. Health Indicators Project

Area of framework	Indicator	Definition
1. Health Status		
1.2 Health conditions	1.2.16 Injury hospitalisations	Age standardised rate of acute care inpatient hospitalisation due to injuries resulting from transfer of energy, per 100,000 population (Source: National Trauma Registry)
2. Non-medical determinants of health		
3. Health System Performance		
3.3 Appropriateness	3.3.1 Vaginal birth after caesarean section	Proportion of women who have previously received a caesarean section, who give birth via vaginal delivery (ICD-9 654.2) in an acute care hospital (Source: Hospital Morbidity Database)
	3.3.3 Caesarean sections	Proportion of women delivering babies by caesarean section (stillbirths excluded from denominator) (Source: Hospital Morbidity Database)
3.6 Effectiveness	3.6.6 Pneumonia and influenza hospitalisation rate	Age standardised acute care hospitalisation rate for pneumonia and influenza (ICD-9 480-487), per 100,000 population aged 65 and over (Source: Hospital Morbidity Database)
3.6 Effectiveness (cont'd)	3.6.8 Ambulatory care sensitive conditions	Age standardised inpatient acute care hospitalisation rate for conditions where appropriate ambulatory care prevents or reduces need for admission to hospital (ICD-9 250, 291-2, 300, 303-5, 311, 401-5, 493) (Source: Hospital Morbidity Database)
3.7 Efficiency	3.7.2 May not require hospitalisation	Percentage of patients hospitalised in acute care facilities for conditions or procedures that often allow ambulatory treatment not requiring admission; derived using casemix group methodology (Source: Discharge Abstract Database)
	3.7.3 Percentage of alternate level of care days	Percentage of inpatient care days where a physician has indicated that a patient occupying an acute care hospital bed was well enough to have been cared for elsewhere (Source: Discharge Abstract Database)
	3.7.4 Expected compared to actual stay	Average number of actual days in acute care hospitals compared to expected length of stay (Source: Discharge Abstract Database)
3.8 Safety	3.8.1 Hip fracture hospitalisation	Age-standardised acute care hospitalisation rate for fracture of the hip (ICD-9 820.0-820.3, 820.8, 820.9) per 100,000 population aged 65 and over (Source: Hospital Morbidity Database)
4. Community and Health System Characteristics		
	4.9 Coronary artery bypass grafts (CABG)	Age standardised rate of CABG surgery performed ono inpatients in acute care hospitals per 100,000 population aged 20 and over (Source: Hospital Morbidity Database)
	4.10 Hip replacement	Age standardised rate of total hip replacement surgery performed on inpatients in acute care hospitals, per 100,000 population (Source: Hospital Morbidity Database)
	4.11 Knee replacement	Age standardised rate of total knee replacement surgery performed on inpatients in acute care hospitals, per 100,000 population (Source: Hospital Morbidity Database)
	4.12 Hysterectomy	Age standardised rate for hysterectomy provided to inpatients in acute care hospitals, per 100,000 women aged 20 and over (Source: Hospital Morbidity Database)

Hospital Data Project
Full Group Meeting, Lisbon, 16-17 May 2002

Summary of feasibility and indicator-relevance of data items considered for inclusion in the common data set

Data item	Feasibility issues (based on inventory)	Indicator relevance *	Draft proposal for consideration
Coverage—patients	Most countries can provide data for inpatients and day cases separately. Exceptions are: ➢ Greece: data on overnight patients only. ➢ Portugal: day cases are coded as outpatients; outpatient data only available as aggregate. ➢ Sweden: day cases are coded as outpatients, for which no data are collected. Some countries, e.g. England, count mothers and babies using delivery facilities only (although separately identifiable in the data).	Only a few of the indicators considered explicitly require the separate identification of inpatients and day cases.	It was agreed at the Core Group meeting on 24/25 January that further work would be carried out on patient and hospital coverage drawing on OECD proposals in this area. This work has been carried out; a separate paper (ref: HDP/02/6a, 6b) sets out the proposals for consideration by the Full Group.
Coverage—hospitals	Hospitals are defined by Law in 8 countries. In addition 6 countries give a general definition. Eight countries cover both private and public hospitals. OECD, HIEMS, Eurostat etc. provide definitions of hospitals.	Where the issue of hospital type is addressed in indicators, the focus is on the short-stay/ long-stay distinction, or the identification of 'acute care' hospitals.	See above
Nature of collection (individualised or aggregate records)	Most countries can provide individualised data, except Germany and Greece, where individual records are collected at hospital level, but only aggregate data are collected centrally.		Raw Aggregate Data is proposed, as in the HIEMS project.
Nature of individual unit/record around which collection is framed	Most collections are based on discharges, but the definition of discharge varies—i.e. some countries count a discharge when the patient moves between department/specialties, others when the patient leaves hospital. The UK counts consultant episodes; France counts hospital stays; Austria counts moves between hospital units; Denmark and Sweden count a discharge on moves between departments as does Iceland and Finland counts moves between specialties.		See below: 'Basic statistical units capable of being analysed'

* Based on a review of 8 indicator projects; see paper ref: HDP/02/3

Data item	Feasibility issues (based on inventory)	Indicator relevance*	Draft proposal for consideration
Basic statistical units capable of being analysed	Most countries can deliver data on the basis of discharges from hospital, with the possible exceptions of Austria, Finland and Denmark (these countries count discharges between specialties or units).	Indicators are most commonly based on discharges, but some are based on admissions. Indicators that require a breakdown by diagnosis usually relate to discharges.	Propose that collection be based on discharges defined as 'discharges from hospital, including deaths in hospital' (based on OECD and HIEMS definitions)
Frequency and timeliness	Most countries have data available on an annual (calendar year) basis. Some report long delays in availability with 5 countries reporting >12 months delay in data availability after the end of the year under consideration. Two countries report delays of over 2 years. Three countries have data available on a quarterly basis.	Only one indicator specifies the time period to which it relates (a calendar year)	Propose that data should be held on an Annual (Calendar Year) basis.
Geographic information—patients	Records are coded at the postcode (or equivalent) level in 6 countries; some level of sub-national breakdown is available in most countries. Data for Luxembourg is at national level. In most countries availability for analysis of detailed information on patients' place of residence is decided on a case-by-case level.	None of the indicators considered require information on patients' place of residence.	The ISARE (FNORS) project has tried to identify the sub-national administrative level most appropriate for health indicator exchange in each country. It has formulated recommendations based on NUTS levels for 13 of the 15 EU Member Countries. Propose either: (a) NUTS levels proposed by ISARE plus 'other country' as a separate category, or (b) More aggregated levels, if ISARE levels would cause confidentiality or other problems. Refer to paper on Geographical Information, ref:HDP/02/10
Geographic information—hospitals	Countries code geographic information on hospitals at differing levels of detail, e.g. postcode, district, county, municipality, trust, hospital number etc. Many countries raised the issue of confidentiality and stated that access to hospital-level data would need clearance from individual hospitals. Another issue raised was that some hospitals have sites at several locations.	None of the indicators considered require geographic information on place of treatment	It is recommended that this data item should not be included in this first phase of the Hospital Data Project. It was agreed at the Core Group meeting on 24/25 January that consideration should be given to including this item, subject to further work. The main reason for including it would be to track patient flows across national boundaries. However, as the information available in national data sets is limited, and there are confidentiality issues, this is unlikely to be feasible. Refer to paper on Geographical Information, ref:HDP/02/10

* Based on a review of 8 indicator projects; see paper ref:HDP/02/3

Data item	Feasibility issues (based on inventory)	Indicator relevance*	Draft proposal for consideration
Age/date of birth	Most countries code Date of Birth. Denmark, France and Iceland code Age, Belgium codes Year of Birth and Germany month and year of birth.	Many indicators relate to specified target age groups. No standard age breakdown emerges, but a five-year breakdown would be sufficient in most cases; more detail is sometimes required within the 15–19 age group (e.g. under 18, 15-17). Several indicators require expression as age standardised rates.	Proposed age grouping: '0–<1', '1–4', then 5 year age groups up to '95 and over'. This is the standard breakdown currently adopted by HIEMS.
Gender	All countries code 'male' and 'female'. Some countries also have residual groups—indeterminate sex, sex change etc. It would be possible to pro-rata these residuals into the M & F groupings.	Very few indicators require breakdown by sex	Proposed categories: Male and Female. HIEMS uses Male, Female and Unknown. Refer to paper on coding of Unknown or Indeterminate Gender, ref: HDP/02/7
Social class/deprivation	Not collected by most countries. Six countries can provide analysis by socio-economic status by assigning deprivation scores to patients on the basis of postcode (or by other means)	None of the indicators considered require information on social class/deprivation	No data item is proposed as this information is not generally collected within hospital data collections and is not required for current indicators.
Length of stay	Most countries can provide data on length of stay calculated as 'discharge date minus admission date'. Exceptions are Finland and Portugal (discharge date minus admission date minus 1), Germany (day of admission plus each full day) and Luxembourg 'discharge date minus admission date plus 1'.	Several indicators refer to average length of stay, sometimes by diagnosis; the related concept of bed days also comes up quite frequently	Proposed definition: Discharge date minus admission date. Refer to paper on length of stay, average (mean) and median length of stay, ref:HDP/02/8a, 8b
Type of admission	All countries except France, Germany, Greece and Austria collect this data item. There is large variation in level of coding detail; it should be possible to map existing codes to three main categories (emergency, non-emergency and other), although this may not be straightforward for some countries. Problems may arise for Austria as type of admission is coded according to department / area of hospital.	While no indicators require information on type of admission as such, several focus on emergency department visits.	Proposed categories: Planned, Emergency and Other. It was agreed at the January meeting that further work was required to look at what was collected in each country and to assess whether it would be possible to achieve comparability. This work has been completed—refer to paper on Type of Admission, ref: HDP/02/9a, 9b

* Based on a review of 8 indicator projects; see paper ref:HDP/02/3

Data item	Feasibility issues (based on inventory)	Indicator relevance*	Draft proposal for consideration
Diagnoses	Most countries code 'main' diagnosis. Ten countries use ICD-10 and two others are likely to move to ICD-10 over next couple of years. Two countries use ICD-9-CM and are unlikely to change (Belgium and Portugal).	All the indicator sets examined include indicators that require some diagnosis information. A broad distinction can be drawn between: ➢ indicators that require breakdown by broad diagnosis groups (e.g. ICD chapters) ➢ indicators that focus on an individual diagnosis or a small group of diagnoses (e.g. pneumonia and influenza). Some indicators relate to 'principal diagnosis' or 'any listed diagnosis', while others do not specify.	Proposed lists of diagnoses for indicators are presented for ECHI, OECD health data and some of the other indicator lists considered (see indicators paper ref: HDP/02/3). See proposals from Prof. Smedby's Expert Group on Diagnosis ref: HDP/02/5a, 5b
Operative procedures	Most countries code operative procedure; exceptions are Greece and Germany (code 'yes' or 'no' only). A range of different classifications is used: three countries use ICD-9-CM, the four UK countries use OPCS, four countries use the Nordic Classification of Surgical Procedures, France uses the cdAM catalogue and the Netherlands use ICPM, WHO.	All the indicator sets examined include indicators that require some information on procedures. Several indicators require only the information that a procedure was performed—essentially a procedure 'flag'. Others identify key procedures, and there are some key procedures that come up commonly (e.g. CABG, hip and knee replacement, caesarean section). Only OECD includes an indicator that requires breakdown by broad ICD-9-CM groupings.	It was agreed at the Core Group meeting on 24/25 January to develop a shortlist of key procedures, with reference to those proposed by ECHI and other projects (see Indicators paper). There will also need to be some investigation of the scope for mapping different procedures classifications used in different countries to the shortlist of key procedures. See proposals in Paper HDP/02/11 and refer to Prof. Smedby's Expert Group on Diagnosis ref: HDP/02/5a, 5b
Specialties	There is wide variation in the definition of specialty. Some countries define it on the basis of consultant specialty, others by hospital ward/department or service. It would be difficult to achieve comparability.	Information on specialty is not generally required for indicators (breakdown into medical, surgical, obs & gynae and paediatrics is required for one WHO HFA beds indicator)	It was agreed at the Core Group meeting on 24/25 January that no data item should be proposed, due to the difficulty of achieving comparability in this area. However, Prof. Smedby's Expert Group will be asked to look at possibilities for deriving a broad specialty grouping from diagnosis data. This would be a derived data item—countries would not be asked to provide data on specialty. See proposal from the Prof. Smedby's Expert Group on Diagnosis ref: HDP/02/5a, 5b
Source of admission	Most countries collect this item (exceptions are Portugal, Germany? and Greece) but the level of coding detail varies (e.g. England has 17 categories while France has only four).	No indicators require information on source of admission.	No data item proposed due to the difficulty of achieving comparability and low indicator relevance.
Destination on discharge	All countries except Greece collect this item; coding detail varies. No information for Germany and Spain.	Some indicators require identification of deaths in hospital, but no indicators require destination on discharge more broadly.	Proposed categories: Home, Death and Other.

* Based on a review of 8 indicator projects; see paper ref: HDP/02/3

Data item	Feasibility issues (based on inventory)	Indicator relevance*	Draft proposal for consideration
Beds, bed days and occupancy rate	This item was not included on the inventory	Several indicators require information on hospital beds, often broken down by broad care types (e.g. acute, psychiatric, long-term care); such indicators relate to health care resource availability. Occupancy rate indicators relate to health care utilisation and require information on numbers of beds.	No data item proposed as it was agreed that the first phase of the project would be confined to 'patient-based' data. Alternative sources would be sought for beds information e.g. Eurostat.
External causes	This item was not included on the inventory	Indicators that require information on external cause generally relate to determinants of health and public health issues, e.g. injury rates and hospital-acquired disorders.	It was agreed at the January Core Group meeting that this item should be considered for inclusion. Prof. Smedby's Expert Group has been asked to consider this proposal. See proposal from Prof. Smedby's Expert Group on Diagnosis ref: HDP/02/5a, 5b
Birth data	This item was not included on the inventory	Indicators concerning birth/neonatal data (e.g. Number of births with congenital anomalies) are probably best addressed using data held on registers, but hospital data may be relevant in the absence of comparable register data.	No data item proposed.

* Based on a review of 8 indicator projects; see paper ref: HDP/02/3

Annex 5
Common Data Set

This annex contains two tables detailing the data items submitted by participants countries to be included in the HDP common data sets. The shortlists for each of the three data sets are included in Annex 6. The categories in these shortlists should also be included as classification variables. Additional variables were derived from the data items submitted by countries; these variables were rates per 1,000 population for inpatient discharges, day cases discharges and total discharges and percentage day case activity.

Table 1 – Classification Variables

Data item	CDS definition	Guidance on information requested
Year	Year of Discharge (YYYY)	For the pilot data set, data for 1999 should be provided.
Gender	1 Male 2 Female	If some records in your national data are coded to gender categories other than 'male' or 'female' (e.g. 'unknown') and if you have a process for allocating "unknowns" to "males" or "females" then please use this. If you do not have such a process then please exclude these records. It would be helpful to get some idea of the size and percentage of the gender coded to categories other than male or female.
Age group	<1, 1-4, 5-9,10-14,15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85-89, 90-94, 95 and over.	Please state whether your data comply with this CDS requirement; if not, please give details. If age is unknown please exclude. Please give details of how you calculate age in your data set.
Type of admission	1 Planned 2 2 Not Planned	Those countries (UK and Belgium) with "other" categories please allocate as you think most appropriate to "planned" or "not planned" and record details in column 4. Please provide any further details on how you define "planned" and "not planned".

Table 2 – Analysis Variables

Data item	CDS definition	Guidance on information requested
Total inpatient discharges and deaths in hospital. (exclude day cases)	An inpatient is a patient who is formally admitted and stays for a minimum of one night. Patients admitted as inpatients but who do not remain overnight for some reason (e.g. death) should be recorded as inpatients. Patients admitted with the intention of discharge on the same day, but who subsequently stay in hospital over night, should also be recorded as inpatients.	Please state whether your data comply with this CDS requirement; if not, please give details
Total day case discharges	A day case is a patient who is formally admitted with the intention of discharging the patient on the same day, and where the patient is in fact discharged on the same day	Please state whether your data comply with this CDS requirement; if not, please give details
Total bed days	Calculated as sum of (discharge date minus admission date) for all deaths and discharges in each group; inpatients only contribute to bed days (day cases are excluded).	Please state whether your data comply with this CDS requirement. If you have used a different method to calculate total bed days please provide details.
Mean length of stay	Calculated as total bed days divided by total number of inpatients in each group. The calculation is based on both deaths and discharges.	Please state whether your data comply with this CDS requirement; if not, please give details
Median length of stay	Median length of stay (discharge date minus admission date) for inpatient deaths and discharges, for each group. Median is calculated by ordering the length of stay in ascending order and selecting the middle value.	Please state whether your data comply with this CDS requirement; if not, please give details

Annex 6

Shortlists for HDP Common Data Sets

This annex contains three shortlists for the HDP common data sets

1. **Diagnoses shortlist**
2. **Procedure shortlist**
3. **External cause shortlist**

1. Hospital Data Project Diagnoses Shortlist Codes

HDP Diagnosis Codes	Heading	ICD-10 Code	ICD-9 Code	ICD Ch.
0100	**Certain infectious and parasitic diseases**	**A00-B99**	**001-033, 0341-0992, 0995-134, 1360, 1362-139, also 042-044 or 2795, 2796 for HIV (varies according to country)**	**I**
0101	Intestinal infectious diseases except diarrhoea	A00-A08	001-008	**I**
0102	Diarrhoea and gastroenteritis of presumed infectious origin	A09	009	**I**
0103	Tuberculosis	A15-A19, B90	010-018, 137	**I**
0104	Septicaemia	A40-A41	038	**I**
0105	Human immunodeficiency virus [HIV] disease	B20-B24	042-044 or 2795, 2796 (varies according to country)	**I**
0106	Other infectious and parasitic diseases	remainder of A00-B99	remainder of 001-139, except 0340, 0993, 0994, 135, 1361	**I**
0200	**Neoplasms**	**C00-D48**	**140-239**	**II**
0201	Malignant neoplasm of colon	C18	153	**II**
0202	Malignant neoplasms of bronchus and lung	C34	1622-1629	**II**
0203	Malignant neoplasms of skin	C43-C44	172, 173	**II**
0204	Malignant neoplasm of breast	C50	174, 175	**II**
0205	Malignant neoplasm of uterus	C53-C55	179, 180, 182	**II**
0206	Malignant neoplasm of ovary	C56	1830	**II**
0207	Malignant neoplasm of prostate	C61	185	**II**
0208	Malignant neoplasm of bladder	C67	188	**II**
0209	Other malignant neoplasms	remainder of C00-C97	remainder of 140-208	**II**
0210	Carcinoma in situ	D00-D09	230-234	**II**
0211	Benign neoplasm of colon, rectum, anus and anal canal	D12	2113, 2114	**II**
0212	Leiomyoma of uterus	D25	218	**II**
0213	Other benign neoplasms and neoplasms of uncertain or unknown behaviour	remainder of D00-D48	remainder of 210-239	**II**
0300	**Diseases of the blood and bloodforming organs and certain disorders involving the immune mechanism**	**D50-D89**	**135, 2790-2793, 2798, 2799, 280-289**	**III**
0301	Anaemias	D50-D64	280-285	**III**
0302	Other diseases of the blood and bloodforming organs and certain disorders involving the immune mechanism	D65-D89	135, 2790-2793, 2798, 2799, 286-289	**III**
0400	**Endocrine, nutritional and metabolic diseases**	**E00-E90**	**240-278**	**IV**
0401	Diabetes mellitus	E10-E14	250	**IV**
0402	Other endocrine, nutritional and metabolic diseases	remainder of E00-E90	remainder of 240-278	**IV**

Diagnosis Shortlist Codes (continued)

HDP Diagnosis Codes	Heading	ICD-10 Code	ICD-9 Code	ICD Ch.
0500	**Mental and behavioural disorders**	**F00-F99**	**290-319**	**V**
0501	Dementia	F00-F03	2900-2902, 2904-2909, 2941	**V**
0502	Mental and behavioural disorders due to alcohol	F10	291, 303, 3050	**V**
0503	Mental and behavioural disorders due to use of other psychoactive subst.	F11-F19	292, 2940, 304, 3051-3059	**V**
0504	Schizophrenia, schizotypal and delusional disorders	F20-F29	295, 2970-2973, 2978-2979, 2983-2989	**V**
0505	Mood [affective] disorders	F30-F39	296, 2980, 3004, 3011, 311	**V**
0506	Other mental and behavioural disorders	remainder of F00-F99	remainder of 290-319	**V**
0600	**Diseases of the nervous system**	**G00-G99**	**320-359, 435**	**VI**
0601	Alzheimer's disease	G30	3310	**VI**
0602	Epilepsy	G40, G41	345	**VI**
0603	Transient cerebral ischaemic attacks and related syndromes	G45	435	**VI**
0604	Cerebral palsy and other paralytic syndromes	G80-G83	342-344	**VI**
0605	Other diseases of the nervous system	remainder of G00-G99	remainder of 320-359	**VI**
0700	**Diseases of the eye and adnexa**	**H00-H59**	**360-379**	**VII**
0701	Cataract	H25-H26, H28	366	**VII**
0702	Other diseases of the eye and adnexa	remainder of H00-H59	remainder of 360-379	**VII**
0800	**Diseases of the ear and mastoid process**	**H60-H95**	**380-389**	**VIII**
0900	**Diseases of the circulatory system**	**I00-I99**	**390-459 except 435 and 446**	**IX**
0901	Hypertensive diseases	I10-I15	401-405	**IX**
0902	Angina pectoris	I20	413	**IX**
0903	Acute myocardial infarction	I21-I22	410	**IX**
0904	Other ischaemic heart disease	I23-I25	411-412, 414	**IX**
0905	Pulmonary heart disease & diseases of pulmonary circulation	I26-I28	415-417	**IX**
0906	Conduction disorders and cardiac arrhythmias	I44-I49	426, 427	**IX**
0907	Heart failure	I50	428	**IX**
0908	Cerebrovascular diseases	I60-I69	430-434, 436-438	**IX**
0909	Atherosclerosis	I70	440	**IX**
0910	Varicose veins of lower extremities	I83	454	**IX**
0911	Other diseases of the circulatory system	remainder of I00-I99	remainder of 390-459 except 435 and 446	**IX**

Diagnosis Shortlist Codes (continued)

HDP Diagnosis Codes	Heading	ICD-10 Code	ICD-9 Code	ICD Ch.
1000	**Diseases of the respiratory system**	**J00-J99**	**0340, 460-519**	**X**
1001	Acute upper respiratory infections and influenza	J00-J11	0340, 460-465, 487	**X**
1002	Pneumonia	J12-J18	480-486	**X**
1003	Other acute lower respiratory infections	J20-J22	466 (acute lower respiratory infections other than acute bronchitis, acute bronchiolitis and pneumonia were not separated in ICD-9, no J22 equivalent)	**X**
1004	Chronic diseases of tonsils and adenoids	J35	474	**X**
1005	Other diseases of upper respiratory tract	J30-J34, J36-J39	470-473, 475-478	**X**
1006	Chronic obstructive pulmonary disease and bronchiectasis	J40-J44, J47	490-492, 494, 496	**X**
1007	Asthma	J45-J46	493	**X**
1008	Other diseases of the respiratory system	J60-J99	remainder of 460-519	**X**
1100	**Diseases of the digestive system**	**K00-K93**	**520-579**	**XI**
1101	Disorders of teeth and supporting structures	K00-K08	520-525	**XI**
1102	Other diseases of oral cavity, salivary glands and jaws	K09-K14	526-529	**XI**
1103	Diseases of oesophagus	K20-K23	530	**XI**
1104	Peptic ulcer	K25-K28	531-534	**XI**
1105	Dyspepsia and other diseases of stomach and duodenum	K29-K31	535-537	**XI**
1106	Diseases of appendix	K35-K38	540-543	**XI**
1107	Inguinal hernia	K40	550	**XI**
1108	Other abdominal hernia	K41-K46	551-553	**XI**
1109	Crohn's disease and ulcerative colitis	K50-K51	555, 556	**XI**
1110	Other noninfective gastroenteritis and colitis	K52	558	**XI**
1111	Paralytic ileus and intestinal obstruction without hernia	K56	560	**XI**
1112	Diverticular disease of intestine	K57	562	**XI**
1113	Diseases of anus and rectum	K60-K62	565, 566, 5690-5694	**XI**
1114	Other diseases of intestine	K55, K58-K59, K63	557, 564, 5695, 5698, 5699	**XI**
1115	Alcoholic liver disease	K70	5710-5713	**XI**
1116	Other diseases of liver	K71-K77	570, 5714-573	**XI**
1117	Cholelithiasis	K80	574	**XI**
1118	Other diseases of gall bladder and biliary tract	K81-K83	575, 576	**XI**
1119	Diseases of pancreas	K85-K87	577	**XI**
1120	Other diseases of the digestive system	remainder of K00-K93	remainder of 520-579	**XI**

Diagnosis Shortlist Codes (continued)

HDP Diagnosis Codes	Heading	ICD-10 Code	ICD-9 Code	ICD Ch.
1200	**Diseases of the skin and subcutaneous tissue**	**L00-L99**	**680-709**	**XII**
1201	Infections of the skin and subcutaneous tissue	L00-L08	680-686	**XII**
1202	Dermatitis, eczema and papulosquamous disorders	L20-L45	690-693, 6943, 696-6983, 6988, 6989	**XII**
1203	Other diseases of the skin and subcutaneous tissue	remainder of L00-L99	remainder of 680-709	**XII**
1300	**Diseases of the musculoskeletal system and connective tissue**	**M00-M99**	**0993, 1361, 2794, 446, 710-739**	**XIII**
1301	Coxarthrosis	M16	Not a concept in ICD-9 at four-digit level. Can only be defined by using the optional fifth digit 5 to 715, i.e. 715.15, 715.25, 715.35 and 715.95	**XIII**
1302	Gonarthrosis	M17	Not a concept in ICD-9 at four-digit level. Can only be defined by using the optional fifth digit 6 to 715, i.e. 715.16, 715.26, 715.36 and 715.96	**XIII**
1303	Internal derangement of knee	M23	717	**XIII**
1304	Other arthropathies	M00-M15, M18-M22, M24-M25	0993, 711-716, 718, 719	**XIII**
1305	Systemic connective tissue disorders	M30-M36	1361, 2794, 446, 710, 725, 7285	**XIII**
1306	Deforming dorsopathies and spondylopathies	M40-M49	720, 721, 7230, 7240, 737	**XIII**
1307	Intervertebral disc disorders	M50-M52	722	**XIII**
1308	Dorsalgia	M54	7231, 7234, 7236, 7241-7243, 7245	**XIII**
1309	Soft tissue disorders	M60-M79	728, 729	**XIII**
1310	Other disorders of the musculoskeletal system and connective tissue	M53, M80-M99	remainder of 710-739	**XIII**
1400	**Diseases of the genitourinary system**	**N00-N99**	**0994, 580-5996, 5998-629, 7880**	**XIV**
1401	Glomerular and renal tubulo-interstitial diseases	N00-N16	580-5834, 5838, 5839, 5900-5902, 5908, 5909, 591, 5933-5935, 5937, 5996	**XIV**
1402	Renal failure	N17-N19	5836, 5837, 584-586	**XIV**
1403	Urolithiasis	N20-N23	592, 594, 7880	**XIV**
1404	Other diseases of the urinary system	N25-N39	0994, 587-589, 5903, 5930-5932, 5936, 5938, 5939, 595- 597, 5980, 5981, 5988, 5989, 5990-5995, 5998, 5999, 6256	**XIV**

Diagnosis Shortlist Codes (continued)

HDP Diagnosis Codes	Heading	ICD-10 Code	ICD-9 Code	ICD Ch.
1405	Hyperplasia of prostate	N40	600	**XIV**
1406	Other diseases of male genital organs	N41-N51	601-608	**XIV**
1407	Disorders of breast	N60-N64	610, 611	**XIV**
1408	Inflammatory diseases of female pelvic organs	N70-N77	614-616	**XIV**
1409	Menstrual, menopausal and other female genital conditions	N91-N95	6250-6255, 6258-627	**XIV**
1410	Other disorders of the genitourinary system	remainder of N00-N99	remainder of 580-629	**XIV**
1500	**Pregnancy, childbirth and the puerperium**	**O00-O99**	**630-676 (no exactly equivalent ICD-9 codes for the three phases)**	**XV**
1501	Medical abortion	O04	635	**XV**
1502	Other pregnancy with abortive outcome	O00-O03, O05-O08	630-634, 636-639	**XV**
1503	Complications of pregnancy predominantly in the antenatal period	O10-O48	640-646, 651-659	**XV**
1504	Complications of pregnancy predominantly during labour and delivery	O60-O75	660-668, 6690-6694, 6698, 6699	**XV**
1505	Single spontaneous delivery	O80	650	**XV**
1506	Other delivery	O81-O84	6695, 6696, 6697	**XV**
1507	Complications predominantly related to the puerperium	O85-O92	670-676	**XV**
1508	Other obstetric conditions	O95-O99	647, 648	**XV**
1600	**Certain conditions originating in the perinatal period**	**P00-P96**	**760-779**	**XVI**
1601	Disorders related to short gestation and low birth weight	P07	765	**XVI**
1602	Other conditions originating in the perinatal period	remainder of P00-P96	remainder of 760-779	**XVI**
1700	**Congenital malformations, deformations and chromosomal abnormalities**	**Q00-Q99**	**740-759**	**XVII**
1800	**Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified**	**R00-R99**	**780-799 except 7880, but including 5997**	**XVIII**
1801	Pain in throat and chest	R07	7841, 7865	**XVIII**
1802	Abdominal and pelvic pain	R10	7890	**XVIII**
1803	Unknown and unspecified causes of morbidity (incl. those without a diagnosis)	R69	7999	**XVIII**
1804	Other symptoms, signs and abnormal clinical and laboratory findings	remainder of R00-R99	remainder of 780-799 except 7880, but including 5997	**XVIII**

Diagnosis Shortlist Codes (continued)

HDP **Diagnosis Codes**	**Heading**	**ICD-10 Code**	**ICD-9 Code**	**ICD Ch.**
1900	**Injury, poisoning and certain other consequences of external causes**	**S00-T98**	**800-999**	**XIX**
1901	Intracranial injury	S06	8001-8004, 8006-8009, 8011-8014, 8016-8019, 8031-8034, 8036-8039, 8041-8044, 8046-8049, 850-854 (Definition includes relevant ICD-9-CM codes.)	**XIX**
1902	Other injuries to the head	S00-S05, S07-S09	8000, 8005, 8010, 8015, 802, 8030, 8035, 8040, 8045, 870-873, 900, 910, 918, 920, 921, 925 (Definition includes relevant ICD-9-CM codes.)	**XIX**
1903	Fracture of forearm	S52	813	**XIX**
1904	Fracture of femur	S72	820, 821	**XIX**
1905	Fracture of lower leg, including ankle	S82	823, 824	**XIX**
1906	Other injuries	S10-S51, S53-S71, S73-S81, S83-T14, T79	805-812, 814-819, 822, 825-829, 831-848, 860-869, 874-897, 901-904, 911-917, 919, 922-924, 926-939, 950-959	**XIX**
1907	Burns and corrosions	T20-T32	940-949	**XIX**
1908	Poisonings by drugs, medicaments and biological substances and toxic effects of substances chiefly nonmedicinal as to source	T36-T65	960-989	**XIX**
1909	Complications of surgical and medical care, not elsewhere classified	T80-T88	996-999	**XIX**
1910	Sequelae of injuries, of poisoning and of other consequences of external causes	T90-T98	905-909	**XIX**
1911	Other and unspecified effects of external causes	remainder of S00-T98	990-995	**XIX**
2100	**Factors influencing health status and contact with health services**	**Z00-Z99**	**V01-V82**	**XXI**
2101	Medical observation and evaluation for suspected diseases and conditions	Z03	V71	**XXI**
2102	Contraceptive management	Z30	V25	**XXI**
~~**2103**~~	~~Liveborn infants according to place of birth~~ Please note that Liveborn babies are being excluded from HDP Pilot Data. See Annex 10, Section B, Part 2: Coverage Issues	~~Z38~~	~~V30-V39~~	~~**XXI**~~
2104	Other medical care (including radiotherapy and chemotherapy sessions)	Z51	V071, V58	**XXI**
2105	Other factors influencing health status and contact with health services	remainder of Z00-Z99	remainder of V01-V82	**XXI**
0	**All causes**	**A00-Z99 (excluding Z38, V, W, X and Y codes)**	**001-V82 (excluding V30 to V39, E800-E999)**	

2. Hospital Data Project Procedure Shortlist Codes

HDP Code	Procedure	ICD–9–CM Part 3
1	Release of Carpal Tunnel	04.43: Release of Carpal Tunnel – The surgical relief of compression of the median nerve at the wrist
2	Thyroidectomy, Partial and Total	06.2: Unilateral Thyroid Lobectomy 06.3: Other partial Thyroidectomy 06.4: Complete Thyroidectomy 06.5: Substernal Thyroidectomy 06.6: Excision of Lingual Thyroid
3	Operations for Cataracts	13.1: Intracapsular extraction of lens 13.2: Extracapsular extraction of lens by linear extraction 13.3: Extracapsular extraction of lens by simple aspiration (and irrigation) technique 13.4: Extracapsular extraction of lens by fragmentation and aspiration technique 13.5: Other extracapsular extraction of lens 13.6 : Other Cataract Extraction
4	Myringotomy with Insertion of Tube	20.01: Myringotomy with insertion of tube.
5	Percutaneous Transluminal Coronary Angioplasty with or without insertion of stent(s) (please note that PTCA excludes 36.03, 36.04)	36.01: Single Vessel Percutaneous Transluminal coronary angioplasty (PTCA) or Coronary atherectomy without mention of thrombolytic agent 36.02: Single Vessel Percutaneous Transluminal coronary angioplasty (PTCA) or Coronary atherectomy with thrombolytic agent 36.05: Multiple vessel Percutaneous Transluminal coronary angioplasty (PTCA) or Coronary atherectomy performed during the same operation, with or without mention of thrombolytic agent 36.06 Insertion of Coronary Artery Stent(s)

Procedure Shortlist Codes (continued)

HDP Code	Procedure	ICD–9–CM Part 3
6	Coronary artery bypass graft	36.1 : Bypass anastomosis for heart revascularization
7	Varicose veins	38.5 : Ligation and stripping of varicose veins
8	Colonoscopy with or without Biopsy	45.23 : Colonoscopy – flexible fiber colonoscopy 45.25: Closed [endoscopic] biopsy of large intestine
9	Appendectomy (Note excludes 47.1: Incidental Appendectomy)	47.0: Excision of appendix 47.01: Laparoscopic Appendectomy 47.09: Other Appendectomy
10	Cholecystectomy	51.2: Cholecystectomy – Excision of all or part of the gallbladder
11	Reparir of Inguinal Hernia	53.0: Unilateral Repair of inguinal hernia
12	Transurethral Prostatectomy	60.2: Transurethral Prostatectomy
13	Other Prostatectomy	60.3: Suprapubic Prostatectomy 60.4: Retropubic Prostatectomy 60.5: Radical Prostatectomy 60.6 : Other Prostatectomy
14	Diagnostic Dilation and Curettage (D&C) (note this excludes 69.01: D&C for termination of pregnancy and 69.02: D&C following delivery or abortion)	69.09: Diagnostic D&C – A form carried out to examine the removed uterine contents for disease characteristics
15	Cesarean Section (note: excludes 74.3: Removal of Extratubal Ectopic Pregnancy and 74.9: Cesarean Section of Unspecified Type)	74.0: Classical Cesarean Section 74.1: Low Cervical Cesarean Section 74.2: Extraperitoneal Cesarean Section 74.4: Cesarean Section of Other Specified Type
16	Hip replacement, Total and Partial	81.51: Total Hip Replacement 81.52 : Partial Hip Replacement
17	Knee replacements	81.54 Total Knee Replacement
18	Total Mastectomy **(Counts to be based on women only)**	85.4 : Mastectomy

3. Hospital Data Project External Cause Shortlist

HDP External Cause Code	Heading	ICD-10 codes	ICD-9 codes
1	Land transport accidents	V01-V89	E800-E829, E846-E848
2	Accidental falls	W00-W19	E880-E888
3	Accidental poisoning	X40-X49	E850-E869
4	Intentional self-harm	X60-X84	E950-E958
5	Assault	X85-Y09	E960-E968
6	Event of undetermined intent	Y10-Y34	E980-E988
7	Complications of medical and surgical care	Y40-Y84	E870-E879, E930-E949
8	Other external causes	remainder of V01-Y95	E830-E845, E890-E929, E959, E969, E970-E978, E989, E990-E999
9	External cause not known or not reported, i.e. missing data.		

Note: Only include cases with a main diagnosis in the HDP Diagnosis shortlist code 1900.

Annex 7

Coverage

Patient and hospital coverage for the Common Data Set (CDS)

This paper first provides some background information, in the form of summary notes on some important and relevant pieces of work, before suggesting how the Hospital Data Project might move forward to define the scope and coverage of the Common Data Set (CDS) currently being developed.

A System of Health Accounts (OECD 2000)

The System of Health Accounts (SHA) 'provides a family of interrelated tables for standard reporting for expenditure on health and its financing' (OECD 2000). Currently, different mixtures of institutional and functional criteria are used to classify health care providers in different countries, which makes international comparison difficult. To reduce this difficulty, SHA splits institutional and functional aspects of health care services into two separate dimensions. This results in a tri-axial system for recording health expenditure—the International Classification for Health Accounts—which defines health care by functions (ICHA-HC), service provider industries (ICHS-HP) and sources of funding (ICHA-HF). It is intended that this proposed classification should provide links with non-monetary data.
The listed purposes of the System of Health Accounts include 'to define internationally harmonised boundaries of health care and basic categories thereof'.

The functional classification
The term 'functional' refers to the goals or purposes of health care, such as disease prevention, health promotion, and long-term care.
The functional classification (ICHA-HC), at the single-digit level, defines a core set of functions that health care systems perform (Table 1). These functions are grouped broadly into personal health care services and goods, collective health care services and health-related functions.
Within each of the core functions there is a further breakdown by 'mode of production'. The basic subdivisions are in-patient care, day care, out-patient and home care, reflecting important distinctions in the underlying technical and managerial organisation of care.
Definitions of these four 'modes of production' are given.

- An **in-patient** is a patient who is formally admitted (or 'hospitalised') to an institution for treatment and/or care and stays for a minimum of one night. In-patient care includes accommodation provided in combination with medical treatment when the latter is the predominant activity provided during the stay as an in-patient.
- **Day care** comprises medical and paramedical services delivered to patients that are formally admitted for diagnosis, treatment or other types of health care with the intention of discharging the patient on the same day.
- An **out-patient** is not formally admitted to the facility and does not stay overnight.

- **Home care** comprises medical and paramedical services delivered to patients at home

An episode of curative care is defined as 'one in which the principal medical intent is to relieve symptoms of illness or injury, to reduce the severity of an illness or injury or to protect against exacerbation and/or complication of an illness and/or injury which could threaten life or normal function'. This includes obstetric services, cure of illness or provision of definitive treatment of injury, the performance of surgery, and diagnostic or therapeutic procedures. Palliative care is excluded.

'Rehabilitative care comprises services where the emphasis lies on improving the functional levels of the persons served and where the functional limitations are either due to a recent event of illness or injury or of a recurrent nature (regression or progression). Included are services delivered to persons where the onset of disease or impairment to be treated occurred further in the past or has not been subject to prior rehabilitation services.'

The point is made that further subdivisions of personal health care services can be relevant. These include breakdown by target groups (age, gender, ethnic group, etc.), client or diagnostic groups (mental illness, pregnant women etc), levels of care (primary, secondary, tertiary) and clinical specialties (surgery, general medicine, etc.). National classifications are often hybrid in nature, incorporating some of these additional dimensions in their breakdown of health-related data.

Table 1: ICHA-HC classification of functions of Health Care (with two digit detail shown only for HC.1 and HC.2 providers)*

ICHA code		Health care provider
HC.1		Services of curative care
	HC.1.1	In-patient curative care
	HC.1.2	Day cases curative care
	HC.1.3	Out-patient curative care (plus 3-digit breakdown)
	HC.1.4	Services of curative home care
HC.2		Services of rehabilitative care
	HP.2.1	In-patient rehabilitative care
	HP.2.2	Day cases rehabilitative care
	HP.2.3	Rehabilitative Out-patient care
	HP.2.4	Services of rehabilitative home care
HC.3		Services of long-term nursing care
HC.4		Ancillary services to health care
HC.5		Medical goods dispensed to out-patients
HC.6		Prevention and public health services
HC.7		Health administration and health insurance

* Based on Table 9.1, OECD 2000.

Health care provider industries

Institutions with similar names (e.g. 'acute hospital') do not necessarily perform the same roles in different health care systems. Also, in many countries there is a tendency towards greater vertical integration of health care providers, that is, a tendency for provider institutions to be composed of a growing number of sub-units with different functions.

The ICHA-HP provider classification is based on the International Standard Industrial Classification, ISIC, Rev. 3 (United Nations 1990). Definitions of each category, with examples of inclusions and exclusions, are given in Chapter 10. A health care provider should be classified within the ICHA-HP on the basis of its principal activity.

Hospitals are defined as 'licensed establishments primarily engaged in providing medical, diagnostic and treatment services that include physician, nursing, and other health services to in-patients and the specialised accommodation services required by in-patients…In some countries, health facilities need in addition a minimum size (such as number of beds) in order to be registered as a hospital'.

The classification does not distinguish between public and private ownership or control of institutions, size or legal status. It is noted that some countries have adopted the WHO-model of categorising health care facilities into primary, secondary and tertiary levels of care, but present use of the terminology is not sufficiently standardised for the purposes of the SHA.

Table 2: ICHA-HP classification of providers of Health Care (with two digit detail shown only for HP.1 providers)*

ICHA code		Health care provider
HP.1		Hospitals
	HP1.1	General hospitals
	HP1.2	Mental and substance abuse hospitals
	HP1.3	Specialty (other than mental health and substance abuse) hospitals
HP.2		Nursing and residential care facilities
HP.3		Providers of ambulatory health care
HP.4		Retail sale and other providers of medical goods
HP.5		Provision and administration of public health programmes
HP.6		Health administration and insurance
HP.7		Other industries (rest of the economy)
HP.9		Rest of the world

* Based on Table 4.1, OECD 2000.

OECD: Statistics on in-patient care

An OECD paper, produced for a meeting of the Working Party on Social Policy, Health Policy Statistics, sets out proposals for defining a set of inpatient and day care statistics (OECD 2001). In doing so it looks at how the principles developed in the SHA can be

applied to design a framework for consistent reporting on patient care, maintaining consistency with National Health Accounts. It works from the assumption that the primary goal, from a policy perspective, is to be able to identify inpatient and day care wherever it occurs.
A minimum breakdown of the SHA provider and functional dimensions is proposed for purposes of health policy analysis and international comparisons. On the functional dimension, the primary split is by mode of production, into inpatient care and day care. Inpatient care is further divided into 'curative and rehabilitative care' and 'long-term nursing care'. There are no further divisions of day care, i.e. curative, rehabilitative and other (nursing, respite, etc) are not separately identified. This approach reverses the hierarchical order of the ICHA-HC classification, by basing the primary division on mode of production rather than function as such.
The whole range of provider categories is included (although some are grouped together), consistent with the objective of identifying inpatient and day care wherever it occurs.

EUCOMP

The EUCOMP project aimed to provide metadata on the organisation of health care within the EU, to allow differences in the boundaries of health care systems to be taken into account in the interpretation of data and indicators.
Countries (EU Member States plus Iceland and Norway) to provided information, via a questionnaire, on functions and actors in their health care systems. This approach to data collection was based on the assumption that the package of functions in health care is essentially stable, while the providers differ.
The questionnaire was based on the list of SHA functions. However, the SHA functions were thought to have inadequate discriminatory power for EUCOMP's purposes, so each function was further broken down into 'activities'. The same 20 activities were identified under HC.1 (cure) and HC.2 (rehabilitation), and included general medical treatment, general dentistry, emergency care, specialised medical treatment and midwifery. The remaining 15 included activities such as speech therapy, ergonomic therapy and alternative medicine. 'Actors' were grouped into the SHA provider categories.

Analyses of the EUCOMP data

The results of some analyses of the data are presented in the project report. They provide broad-scale comparisons of the health care systems in different countries. Looking at the number of actors in each SHA provider category gives an indication of the different organisational structures in operation. The number of actors in the SHA category 'hospitals' varies markedly between countries, when taken as a percentage of all actors in the health system. Interestingly, there is less variation if hospital and nursing home categories are combined, perhaps suggesting different distribution of functions between these two provider types in different countries. However, the distribution of actors between provider categories does not necessarily reflect the distribution of activity. There is also substantial variation between countries in the average number of functions performed per actor, possibly reflecting variation in the predominance of providers of integrated services.

The report presents information on the cure and rehabilitation functions/activities that are provided in hospitals in different countries. Within the SHA category HC.1 (cure), all countries provide specialised medical treatment and midwifery, nine of the 15 countries do not provide general dentistry in hospitals, while it appears that only Luxembourg does not provide emergency care. The data suggest that Great Britain is unique in not providing 'general medical treatment as part of medical care' in hospitals, which is surprising and raises some question as to whether the activity categories were interpreted consistently across countries providing information. In comparison with 'cure', there is much more variation between countries in terms of what rehabilitation activities is provided in hospitals. While these results seem to contain some important messages, without definitions of the various activities it is difficult to know how to interpret them. Also, as the report notes, the data collected cannot provide answers to questions about what proportion of a particular activity is provided in hospitals, and what proportion in other settings.

Usefulness and availability of the EUCOMP data

A flexible, interactive internet application was developed, with the aim of making the EUCOMP data widely available, although it seems that this application was not available at the time of writing this paper. Metadata such as those collected by EUCOMP could provide a valuable complement to the data submitted by Member States for the HDP CDS, and an aid to the interpretation of comparative analyses based on those data. However, the EUCOMP data do not provide definitive information on what functions and modes of production are included in national hospital data sets of Member States, and it is this information that is of primary interest to the HDP.

How to proceed on coverage of the CDS

The only way to achieve full comparability between countries would be to collect data on all activity, wherever it occurs. It would then be possible to have a full understanding of differences between countries in terms of what types of care are provided and where they are provided. It would also allow us to look at changes over time between different modes of production (inpatient/day care/outpatient) and different settings in which care is provided (e.g., hospital/outpatient clinic). However, as this is not realistically achievable, it is necessary to adopt a pragmatic solution and accept that apparent differences between countries may be explained, e.g., by the fact that some proportion of inpatient curative activity is taking place in settings that are not captured by the common data set. Caveats or 'health warnings', and possibly metadata such as those collected by EUCOMP, may need to be attached in some way to the CDS database to guide users of the data. Users should be made aware that further investigation of apparent differences between Member States may be needed, drawing on other information sources, before it can be concluded that there are material differences in terms of, e.g. rates of certain types of intervention.

Assumptions

The proposals on coverage presented below are based on the following assumptions:

- The focus of the project is 'hospital data', so it is appropriate to refer to provider industry categories (not just 'functions') in defining the coverage of the CDS.

- Outpatient data will not be included in the CDS, at least initially, largely because many countries do not currently collect comprehensive data on outpatients. However, it is acknowledged that it would be desirable to be able to track the shift from inpatient to day care to outpatient activity, which is currently occurring in many countries; this could be a logical extension to the CDS once it is established.
- The objective should be to draw the bounds of the CDS around curative, and possibly also rehabilitative functions; data relating to other functions in the ICHA-HC classification (e.g. long term nursing care) should, as far as possible, be excluded from the CDS.

SHA classification categories

It is unlikely to be feasible to separately identify curative and rehabilitative care that occurs within hospitals. Therefore, the SHA categories as presented in Table 3 could be considered as a basis for defining the scope of the CDS. The inclusion of both curative and rehabilitative care would be consistent with the OECD proposal in *Statistics on in-patient care*, which does not seek to separately identify these two functions (OECD 2001).

Table 3: Proposed scope of HDP Common Data Set

	HP1.1 (General hospitals)	HP1.2 (Mental and substance abuse hospitals)	HP1.3 (Other Specialty hospitals)
HC.1.1 (In-patient curative care)	✔	✔	✔
HC.1.2 (Day cases curative care)	✔	✔	✔
HP.2.1 (In-patient rehabilitative care)	✔	✔	✔
HP.2.2 (Day cases rehabilitative care)	✔	✔	✔

The definitions of inpatient and day care given in the SHA are likely to need to be developed in greater detail for the purposes of the CDS. In particular, there will need to be agreement on how to classify patients

(i) who are admitted with the intention that they will not stay in hospital over night, but who subsequently do, and

(ii) who are admitted as inpatients but who do not in fact remain overnight for some reason (e.g. death).

It is proposed here that both these categories should be classed as inpatients.

The SHA gives definitions of curative and rehabilitative care, based on the primary intent of the care. The terms ‘curative’ and ‘acute’ are sometimes used interchangeably (e.g., OECD 2000, p117). Many definitions of ‘acute care’ or ‘acute hospital’ have been put forward by international organisations, or developed in the context of other EU-funded projects. Some definitions are based on average length of stay, though there is a lack of consensus on the number of days that should be used to define ‘acute’. Average length of stay is not proposed here as a means of determining which hospitals or wards should be ‘in’ or ‘out’ for the purposes of the CDS.

In the SHA, hospitals are defined as 'licensed establishments primarily engaged in providing medical, diagnostic and treatment services that include physician, nursing, and other health services to in-patients and the specialised accommodation services required by in-patients'. The definition of hospital currently being used for the HIEMS database is broader, in that it does not stipulate that inpatient services and related accommodation should be provided. A hospital is defined as 'an institution which is managed, staffed and equipped for the provision of health care services; a hospital is an establishment providing medical cure and nursing care for persons proven or suspected to be suffering from a disease or injury' (TFHC-Eurostat).
It is likely that there will need to be discussion among Member State representatives as to whether these types of definitions provide sufficient guidance to achieve comparability for the purposes of the CDS, and whether Member States can provide data that 'comply' with such definitions.

Client or diagnostic groups

The SHA identifies 'Client or diagnostic groups' (e.g. maternity, psychiatric or geriatric care) as a dimension that may be used for classifying personal health care. This dimension is not included in the SHA functional classification.
It is proposed here that the CDS should not specifically include or exclude particular client or diagnostic groups. While there may be differences between countries in terms of the extent to which, e.g., maternity care is delivered within hospitals, it is likely that these differences can be accounted for using information provided by countries within their metadata. That is, activity with maternity or psychiatric specialty could be excluded from certain analyses/indicators to improve comparability between Member States. It may be more difficult to identify geriatric care using specialty groupings derived from diagnosis coding. There is likely to be a role here for metadata and/or 'health warnings' to guide interpretation of the data where there are important differences between countries.

Public/private distinction

The SHA classification does not distinguish between public and private funding, ownership or control of institutions. In *Statistics on inpatient care* (OECD 2001) the point is made that, although in some national information systems the distinction between 'public' and 'private' providers plays an important role, when making international comparisons it is questionable if this distinction is meaningful as the categories 'public' and 'private' cannot be interpreted without additional information on the country-specific organisation of health care systems.
It is proposed that the CDS should include data on all hospital activity. Where a Member State cannot provide data for a certain category of hospital (e.g. privately funded/owned hospitals, prison hospitals or military hospitals), an estimate should be sought of the proportion of total activity missing as a result (e.g. 'private hospitals are thought to account for 5% of all hospital discharges').

Next steps for the HDP

In summary, the discussion above leads to the following proposals:

- That the SHA functional and provider categories in Table 3 be adopted to define the scope of the CDS (with further work on definitions as indicated above).

- That particular client or diagnostic groups (e.g. psychiatric, maternity, geriatric) should not specifically be excluded from the CDS.
- That the CDS should include data on all hospitals; countries unable to provide data on certain categories of hospital (e.g. 'private' hospitals) should give an estimate of the amount of activity missing from their data as a result.

In addition to discussing these broad proposals, it will be necessary to get input from Member States on the following:

1. The development of agreed working definitions of hospital (and the three broad hospital types), inpatients and day cases, and curative and rehabilitative care
2. Is it appropriate to use both function and provider dimensions to define coverage of the CDS, or is the function dimension alone sufficient; i.e. should the CDS set out to capture inpatient and day case curative and rehabilitative care, wherever it is provided?
3. Would it be desirable/feasible to exclude long-term nursing care provided within hospitals.
4. Would it be desirable/feasible to add SHA function and/or provider type codes as a data item in the Common Data Set? This could allow certain analyses/indicators to be limited to, e.g., general hospital data.

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HIEMS???

Annex 8

Expert Group Participants

Professor Björn Smedby,
WHO Collaborating Centre for the Classification of Diseases in the Nordic Countries, Sweden

Dr John S.A. Ashley
Retired, Formerly of Office of National Statistics, UK

Dr Marion Girardier-Mendelsohn
PERNNS (Pole d'Expertise et de reference national des nomenclature de sante), France

Mr Andre L'Hours
Classification, Assessment, Surveys and Terminology, Evidence for Health Policy, World Health Organisation, Switzerland

Dr Martti Virtanen
Classification Expert
Federation of Finnish Municipalities, Finland

Annex 9

A recommended shortlist of diagnoses for hospital activity analysis

Final report from the Expert Group on Shortlists for the EU Hospital Data Project

Compiled by Björn Smedby

Summary

This report presents a recommended shortlist of diagnoses for use in international comparisons in hospital activity analysis. A major problem when trying to compile a suitable ICD based shortlist is the simultaneous use of ICD-9 and ICD-10 in different countries.

The work was done by an Expert Group for the EU Hospital Data Project (HDP). The Expert Group reviewed a number of existing diagnostic shortlists but concluded that it was not possible to piece together a new shortlist based on groups common to existing lists. Instead the group worked with analyses of test data from three countries using ICD-10 (England, France, and Sweden), later complemented with test data from one country using ICD-9-CM (Ireland).

The experts presented a series of principles for creating groups and used the test data to build a new shortlist. One principle was that the list should be based primarily on ICD-10 codes. The main condition defined as in ICD should be used for the grouping. Only three-character codes of ICD-10 were used for defining groups but the mapping of ICD-9 codes to these groups may require four-digit codes. Exact equivalence could not be achieved between the two ICD revisions, even if steps were taken to optimize comparability.

Several very common three-character codes (42 codes) were used as groups in their own right, while others had to be combined with other codes because of closely related content. Remainder groups have been created within ICD-10 chapters to allow summation at chapter level and to validate tabulation. Very small groups have been included only when they are of special public health importance. Some groups are warranted mainly to show important, possible differences in coding.

A provisional list was presented to the HDP in May 2002. Based on comments from some EU Member States and the availability later of ICD-9-CM coded test data, some minor changes were made in the list. The revised list was used in the request for collection of test data for the HDP in August 2002.

There are 130 specified groups in the recommended shortlist. A table that presents all groups as well as chapter sums and a grand total will comprise 149 lines, which is a printable format. The list, its definitions by ICD-10 and the corresponding ICD-9 (and ICD-9-CM) codes are presented in this final report. The list presented here includes a few minor late corrections of ICD-9-CM based group definitions.

In general, the Expert Group concluded that organization, recording practice, diagnostic labelling and coding are much more likely to explain statistical differences found between countries than morbidity differences. Studying frequencies for specific diagnoses and codes included in a shortlist group may be necessary in order to understand and interpret surprising differences at shortlist level.

The Expert Group did not recommend casemix groups such as DRGs for the HDP due to the differences found in existing casemix systems. External cause information should be included in the common data set and some broad groups were suggested for external cause tabulation. Some principles for a hospital procedure shortlist were recommended but no such list was developed by the experts due to time constraints. Grouping by specialty should not be done through diagnostic data due to overlap between specialties. Principal diagnosis should be defined according to ICD-10 but there is no need for defining a principal procedure.

The Expert Group recommended that one should try, at least during an initial testing period, to work with anonymized, person-based data from countries which may be legally able and willing to provide such data sets instead of using aggregated data.

Introduction

As part of the European Union Health Monitoring Programme the Hospital Data Project (HDP) is aiming at preparing a detailed and practical methodology for the production of comparable hospital data. A key action required to advance the work of the project is the need to decide on the best method for achieving comparability between the diagnostic information at patient level collected in each country. A short-term aim is to arrive at a recommended shortlist of ICD codes for hospital inpatients.

In an invited paper presented to the HDP at a meeting in Dublin in 2001 (1), the author pointed to the fact that there are many problems in the validity of diagnostic data collected through routine registration of hospital discharges. There are differences between countries in coverage and definitions and with respect to national guidelines and rules as well as registration and coding practices. Furthermore, the simultaneous use of ICD-9 and ICD-10 constitutes a major problem when trying to compile a suitable ICD based shortlist. As a result of the discussions at the meeting, the author was asked to convene an Expert Group on Shortlists. The following experts agreed to participate in the work of the group: John Ashley, England; Marion Girardier-Mendelsohn, France; André L'Hours, WHO, Geneva; Martti Virtanen, Finland.

The following persons from the Management Team of the HPD also took an active part in the work of the group: Arun Nanda, WHO Regional Office for Europe; Val Tyler, Project Manager; Richard Willmer. Nicola Fortune (on secondment to Department of Health, UK) also took part.

The Expert Group held three meetings in London in early 2002. Most of the work, including extensive analyses of test data from three countries, was done between and after these meetings through e-mail correspondence. Kristina Bränd Persson, Uppsala, Sweden, handled the tabulation of test data used for the analyses. John Ashley and Björn Smedby made most of the work in constructing the shortlist according to principles decided on by the Expert Group as a whole. Marion Girardier-Mendelsohn and Martti Virtanen investigated the possibilities of using DRG systems as a complement to an ICD based shortlist. André L'Hours took the main responsibility for providing the corresponding ICD-9 codes for the recommended list. Björn Smedby was responsible for writing the reports of the Expert Group.

Based on the work of the group, a report with a provisional recommended shortlist for diagnoses was presented to the HDP at a meeting in Lisbon in May 2002 (2). Discussions at that meeting and further comments from some EU Member States, as well as the availability of test data from an additional country, resulted in some minor changes in the recommended shortlist. This revised list was used when, in August 2002, the HPD sent a formal request to participating countries to submit test data for the data collection phase of the project. The recommended list presented in this final report is the same as the revised list used for the test data collection (with only some recent corrections of the ICD-9-CM definitions of group 115 and 116 in the list).

The task of the Expert Group

The primary task of the Expert Group was to suggest a shortlist for comparing data on hospital discharge diagnoses that should be possible to define according to both ICD-9 and ICD-10. The list should be suitable for comparative hospital activity analysis within the European Union.

The Expert Group was also asked to give advice to the HPD on some related issues such as including psychiatry and maternal care in the EU comparisons, the feasibility of including information on external causes of injuries in the data collection, advice on principles for a shortlist of hospital procedures, on grouping by speciality and on how principal diagnosis and principal procedure should be recorded in the future.

The process of building a suitable shortlist

The Expert Group started out reviewing a number of existing diagnostic shortlists. Among those were the official shortlist for morbidity in ICD-10 (298 groups), the Basic Tabulation List of ICD-9 (57 two-digit rubrics, 307 two- and three-digit rubrics altogether), the WHO list from the Global Burden of Disease Study (135 groups), two lists earlier being suggested in EU related projects (91 and 114 groups), the list used by OECD (some 25 groups), different national shortlists being used for hospital discharge statistics in England, France and Sweden (between 99 and 227 groups) and a Nordic list used by NOMESCO (61 groups). Some of these shortlists were defined only in relation to ICD-9 or ICD-10, while others were defined – more or less exactly – to both these ICD revisions and, in a few cases, also to earlier revisions.

An early observation was that even if many groups in these lists had similar titles and at first glance seemed to be identical, minor or major differences in content were found when the codes included in the groups were scrutinized. Therefore, the Expert Group concluded that it was not possible to piece together a new shortlist based on groups common to existing shortlists.

From our previous experience it was known that there are some differences in the use of certain ICD codes due to differences in diagnostic traditions, registration rules and coding guidelines. Therefore, an initial review was made of the frequency of all single, three-character ICD-10 codes used for the main condition in three sets of national hospital discharge data. Data sets were available for France (20 million discharges), England (12 million consultant episodes) and Sweden (1.4 million discharges). For each country we acquired a file containing all ICD-10 three-character codes and the frequency of main condition discharges for each code.

Use of Z-codes and proportion of one-day stays

A striking feature in the preliminary analyses was the great differences in the use of codes from chapter XXI of ICD-10. These so called Z-codes did constitute 36 percent

of all discharges in France and 8 percent in England but only 3 percent in Sweden. These codes are mainly used for short stays for repeated treatment such as renal dialysis, radiotherapy, chemotherapy and blood transfusions but also for observation, follow-up examinations and rehabilitation. In France and England the use of Z-codes also reflects the care of newborn healthy infants (coded to Z38). In Sweden, newborn healthy infants are not registered as patients but only appear indirectly through their mothers.

A closer analysis showed that the proportion of one-day stays among the three countries differed very much. In general, discharges with a stay of none or only one day may be cases where the patient was treated and discharged the same day, or was transferred to another hospital, or died within 24 hours of admittance, or such discharges may be defined as day-cases by administrative rules. Such cases constituted as much as 45 percent of the stays originally reported from France. In England 30 percent of the episodes were defined as day cases. No figure for one-day cases was available for Sweden, but day surgery cases were in principle not included in the file and are not available at national level in Sweden. The high proportion of Z-codes in the French and the English files were, of course, partly due to the inclusion of day cases.

The Expert Group recommended that, for the Hospital Data Project, patient data shall be reported and analyzed separately for the two groups of one-day stays ("day cases") and more-than-one-day stays. The one-day stays may be defined and identified either by national administrative rules for what should be regarded as day surgery or a day case or − if this is not applicable − they may be identified as all stays with one day of care or less. The more-than-one-day cases could be defined either administratively as overnight patients or as stays with more than one day of care. This calls for identical definitions of length of stay, of course. Furthermore, it has to be observed that patients who are admitted as overnight patients but who die within the first day of care may be counted differently according to how one-day stays are defined and identified. Further studies are needed to understand the effects of different definitions and how to achieve optimal comparability between countries in this respect.

The dagger-asterisk system

A special problem for comparisons is the different application of the dual coding system referred to as the "dagger and asterisk" system. This was first introduced with ICD-9 and further developed in ICD-10. The system allows two codes to be used simultaneously for the same diagnostic statement, one code referring to the underlying generalized disease (marked with a typographic dagger) and another code for a manifestation of the disease in a particular organ or site which constitutes a clinical problem in its own right (this code is marked with an asterisk). The dagger code is regarded as the primary code, while the asterisk code is an optional additional code. This convention was provided in ICD because coding the underlying disease alone was often felt unsatisfactory. This was particularly so for compilations of statistics relating to particular specialities, where there was a desire to see the condition classified to the relevant chapter for the manifestation when the manifestation was the chief reason for medical care (ICD-10, volume 2, p.20). A limited number of asterisk codes are

provided in ICD-10. They must never be used alone but only in combination with a corresponding dagger code.

The dagger-asterisk system provides alternative possibilities for the presentation of statistics. For hospital activity analysis the manifestation code (asterisk code) may be more relevant than the etiological code (dagger code). For a patient with a diabetic eye complication, for instance, it may be more relevant to describe his condition primarily as an eye disease that needed eye surgery in an ophthalmology department than to count the stay only as due to diabetes.

However, the fact that countries have applied the system differently complicates uniform statistical reporting and presentation. The dagger code is the principle code and is usually given first with the optional asterisk code as the additional, second code of the pair. Some countries, e.g. France, Finland and Sweden, have modified the registration rules so that the asterisk code is given first, followed by the dagger code. This is partly due to technical reasons but also to emphasize the clinical and statistical importance of the manifestation code.

The data sets that we studied from France and Sweden had asterisk codes as the first diagnosis, if the main condition was coded with a dagger-asterisk pair. The overall frequency of asterisk codes as main diagnosis in these two countries was only 0.5 percent. Because of the low frequency of use, the asterisk codes do not constitute a great practical problem. For certain conditions, such as diabetes complications, Alzheimer's disease, vascular syndromes of brain and nerve root and plexus compression, the consequences of different use of the dagger-asterisk system should, however, be further studied.

One practical way to solve the problem is to require national editing of the data reported for international statistical analyses through suppression of the asterisk code, if reported first, and basing all comparisons on dagger codes alone. This applies to the situation when the dagger-asterisk system is applicable and is used for the main condition. (This is actually done in Sweden when tabulating national data because of inconsistent use of the system.) A drawback with this approach is that the clinically more meaningful information given in the asterisk code will not be utilised. Another complication is that asterisk codes are sometimes used alone without the corresponding dagger code, in spite of the rules given in ICD-10. (For Sweden this was the case in 7 percent of the cases with an asterisk code reported first.) Therefore, for the diagnostic shortlist the asterisk codes that represent the manifestation of a disease have been included in the definition of the groups in the list but no group in the list comprises only asterisk codes.

Some general remarks on comparability of test data

The further work on diagnoses was guided primarily by analyses of the test data from three countries as mentioned above. However, in order to make the three data sets more comparable, one-day stays were excluded from the French test data. The day cases in England were also excluded, while the Swedish data was left unchanged. Some

differences still remain, however. For instance, the Swedish data includes one-day stays when a patient died shortly after admission or was transferred to another unit. Such cases were excluded from the French file on the basis of their short stay.

Comparisons of the frequency distributions over all three-character codes showed important differences also after this reduction of the French and English data sets. In order to make the differences more obvious we ranked all codes by frequency. Lists of the 50 most common single three-character codes in each country were compared. A combined ranking list for the three countries was also produced. The ranking lists turned out to be very helpful, not only in finding the most frequent codes but also for identifying peculiarities of the coding.

Principles for creating groups

After having studied test data from the three countries, the expert group decided on the following principles and guidelines for the creation of shortlist groups:

- Groups should be based on ICD-10 codes. The reason for this is that the list should be future oriented and is supposed to last for many years. Adapting groups to ICD-9 (and ICD-9CM) codes will therefore be a secondary concern.
- The main condition defined as in ICD-10 (and also in ICD-9) should be the condition used for the grouping. This usually corresponds to the first-listed diagnosis in the patient record.
- If the dagger-asterisk system is used for the main condition, rules have to be given for which code should be chosen. Since only dagger codes are compulsory these have to be chosen primarily, but the optional asterisk codes also have to be included in the shortlist due to varying practice in different countries.
- Only codes from chapters I-XIX and XXI of ICD-10 will be used. External cause codes (chapter XX) will not be used for the diagnostic shortlist but may be used to create separate reports of external causes of injury.
- For defining groups only three-character codes from ICD-10 should be used (not decimal codes). Some countries may collect national data only at the three-character code level.
- The most common three-character codes may be used as groups in their own right. These groups should be decided on based on studies of data from several countries.
- When single-code presentation is not warranted, closely related conditions should be brought together. In certain cases the structure and content of ICD-10 makes it necessary to combine codes. This may reduce the effect of minor differences in coding and registration.
- The list should, however, be able to show important differences between countries in coding and registration and should not conceal such differences.
- The list should be hierarchical and groups should be possible to combine to ICD-10 chapters.

- Within chapters, single codes and groups of codes should be chosen based on frequency and importance from a hospital activity analysis point of view and for public health importance.
- Remainder groups within chapters have to be created to bring together codes not chosen for separate presentation. These remainder groups may not be clinically or otherwise meaningful but are useful for validating tabulation at chapter level and for the grand total. Such remainder groups should be limited in size, as far as possible.
- There should be an overall remainder group for unknown and unspecified causes of morbidity, which has to include cases with invalid codes and cases without a diagnosis. The size of this group is important as a quality check.
- The total number of groups should not exceed 150.
- The provisional list based on these principles should be tested with data from other countries as well. Necessary revisions should be considered according to the results of such testing.

The building of the new shortlist

Based on the above-mentioned principles and the ranking of three-character codes we started to build groups. Very frequently used three-character codes were regarded as candidates for becoming groups of their own in the shortlist. In fact, as many as 42 single codes were chosen in this way.

We found it reasonable to consider some single codes as special groups even if they were not equally frequent in all three countries. This may be due to important differences in registration rules or peculiarities in the coding, which should be noted and not concealed. One such example is the already mentioned fact that the code Z38 "Liveborn infants according to place of birth" is used for healthy newborn babies in both England and France. These infants are not registered as separate patients in Sweden. In England and France, Z38 is the single most common three-character code while it is practically non-existent in Sweden. The Hospital Data Project decided to exclude newborn healthy babies from the data collection. In a diagnostic shortlist for general use it should be included, however, to reveal possible differences in this respect.

In some cases even a very frequent single three-character code cannot stand alone because its content is so closely related to other codes and no clear distinction between the codes can be expected. An example is I21 "Acute myocardial infarction", which has to be combined with I22 "Subsequent myocardial infarction" since it is known that different tradition and rules may influence the coding of a new acute myocardial infarction in a patient who had an earlier infarction. In some countries, only a new infarction within 28 days is regarded as a recurrent infarction that should be coded to I22.

Another example is A41 "Other septicaemia", which cannot reasonably be separated from the less common A40 "Streptococcal septicaemia" because of the closely related content. In this case, one also gets a problem with the naming of the group. The title

"Other septicaemia" does not make sense if it is the only septicaemia group in the list. It is important that all groups have clear headings that are easily understood and are correct representations of the structure of the classification. Such considerations have sometimes been the reason behind combining codes and choosing whole sections of ICD-10 as groups. There are some groups in the list, however, which have headings that include the word "other", but in these cases the list also includes other defined groups through which the "other" group is defined, even if only indirectly.

Sometimes ICD-10 provides both specified and unspecified diagnoses of related nature in separate codes. Both E10 "Insulin-dependent diabetes mellitus" and E11 "Non-insulin-dependent diabetes mellitus" are frequent as single codes but since there is also a code for E14 "Unspecified diabetes mellitus" all diabetes codes have to come together in one group.

For practical reasons, about 150 groups would be an optimal number to make the list useful and allow printable statistical tables. In order to limit the number of groups we have tried to avoid very small sized groups. A few such groups were accepted due to public health importance, such as tuberculosis and HIV disease.

A09 "Diarrhoea and gastroenteritis of presumed infectious origin" is a common single code in some countries such as France and Sweden, mainly because diarrhoea and gastroenteritis NOS (not otherwise specified) are coded here. In England, however, these NOS cases are coded to K52 "Other noninfective gastroenteritis and colitis" in accordance to a note in ICD-10, which says that this may be done in countries where these conditions can be presumed to be of non-infectious origin. Therefore, K52 is a very common code in England. Thus, both these codes warrant special groups of their own. They cannot be grouped together, because they belong to different chapters and we would then violate the principle that ICD-10 chapters should be kept apart.

A similar problem arises with respect to G30 "Alzheimer’s disease" and the corresponding asterisk code F00 "Dementia in Alzheimer’s disease". In practice these two codes are not always used together as would be expected. As mentioned earlier, they could therefore complement each other. This could have warranted a special group not only for G30 but also for F00. Since we have recommended – as stated earlier – that the dagger code should be the one primarily used for the analysis, this problem will be minor. In the recommended list, F00 has been placed in a broader group of Dementia (F00-F03), including also other and unspecified dementia.

In order to be able to report statistics by ICD-10 chapters, remainder groups have been introduced at the end of each chapter. The only exception to this rule is the two chapters for diseases of the ear and for congenital malformations, which have been used as shortlist groups themselves. The remainder groups in other chapters may not be clinically or otherwise meaningful but they serve an important practical role to validate the sums at chapter level and for the grand total.

In addition, some remainder groups have been created within chapters to facilitate summation of groups to meaningful, broad subchapter groups such as malignant neoplasms, ischaemic heart disease, arthropathies and head injuries.

Compatibility with ICD-9

It has been emphasized that it should be possible to use the same shortlist for diagnoses coded by both ICD-10 and ICD-9 (including ICD-9-CM). One of our principles was to base the list primarily on ICD-10, however. The reason for this is that one ought to have a future perspective and ICD-10 will soon be used in most countries. An ICD-10 based list increases the possibility that the list will be used for a long time, which facilitates longitudinal analyses.

To certain extent code equivalence problems between ICD-9 and ICD-10 have influenced the grouping, however. The specification of "Transient cerebral ischemic attacks and related syndromes" as a special group is motivated mainly by the different placement of this group in ICD-9 and ICD-10. With respect to injuries the two classifications differ widely. Instead of following the ICD-10 grouping by body region – which could have been an alternative – we have selected certain frequently occurring fractures as groups of their own in the shortlist. This facilitates greatly the translation of injury codes from ICD-9 to ICD-10.

It is not possible, however, to get a perfect fit of ICD-9 codes to groups primarily defined by ICD-10 codes. In order to increase the comparability, we have recommended the use of some four-digit ICD-9 codes for better matching of the groups. This will probably not constitute a problem since most countries still using ICD-9 collect and report four-digit codes.

Two groups constitute special problems. Coxarthrosis and gonarthrosis are both very common single ICD-10 diagnoses that definitely should become groups of their own because they are, to an increasing extent, the reason for important surgical procedures. These two diagnoses were not separate concepts in ICD-9. They were part of the same code (715) and not possible to distinguish even at the four-digit level. There is a possibility to identify the two, however, if one uses the optional fifth digit available in ICD-9 (and ICD-9-CM) for this code. A problem may be that the five-digit codes are not always used or, if used, not reported centrally. In order to compare statistics in this area from countries using different versions of ICD, one may have to combine several groups in the shortlist. For a combined group consisting of groups 80-84 "Arthropathies" (or combining groups 80, 81 and 84 into a new group called "Arthropathies except internal derangement of knee") one gets a fairly good correspondence between the two classification versions. (An alternative way to compare the hospital activity that these conditions lead to is to compare statistics on the corresponding prosthetic replacement procedures performed, rather than using the diagnoses.)

A change was made in the main axis of classification in chapter XV Pregnancy, childbirth and puerperium of ICD-10, back to that applied in ICD-8. This makes it

impossible to provide exactly equivalent ICD-9 codes for the three phases, antepartum, labour and delivery and postpartum in this chapter. The fit seems to be reasonably good for practical purposes, however.

There was also a minor problem in getting exact equivalence for group 52 "Other acute lower respiratory infections" because respiratory infections other than acute bronchitis, acute bronchiolitis and pneumonia were not separated in ICD-9. Therefore, there is no ICD-9 code equivalent to J22 in ICD-10.

A final word of warning about the practical comparability between ICD-9 and ICD-10 is warranted. Whoever does the programming for the ICD-9 aggregation will need to be told that not only are there different numbers of chapters between the two revisions, but also is the chapter order not the same. The groups should come out in the ICD-10 order and not in the order of the ICD-9 codes.

The recommended shortlist

The shortlist for hospital morbidity that the Expert Group recommended is presented in the Appendix. The final version includes the few changes of the definitions of groups and some correction of codes resulting from the discussions at the Lisbon meeting and comments from some of the participating countries. As already mentioned, it also includes a recent correction of ICD-9-CM definitions of groups 115 and 116 in the list.

In summary, the recommended shortlist contains 130 specified groups. The groups can be combined to broader groups corresponding to the ICD-10 chapters. A table that presents all groups as well as chapter sums and a grand total will comprise 149 lines.

The number of groups within chapters differs (Table 1). Two chapters are not subdivided at all and constitute groups of their own in the list. Four chapters have only two groups, which means that only one group and a remainder group have been specified in those chapters. At most there are 11 groups for the circulatory system, 13 groups for the neoplasms and 20 groups for the digestive system chapters. There is also provision for easy summation to a few broader groups within chapters such as malignant neoplasms, ischaemic heart disease and arthropathies.

In the Appendix comments are given to help explain why the groups have been chosen and how they are defined. Some warnings are also given for differences mainly based on registration and coding differences that we have observed.

The size of the groups varies between countries. Many of the specified groups comprise between 0.2 and 0.7 percent of all cases but there are both smaller and bigger groups. The remainder groups are often bigger than the specified groups.

The Appendix also contains, in a separate table, the distribution of the test data from France, England and Sweden primarily coded by ICD-10 and corresponding data from Ireland coded by ICD-9-CM, both as absolute numbers and percentage distributions. The figures presented are for the reduced data sets, excluding one-day stays in France

and day cases in England. For France and Sweden asterisk codes have been used as main diagnosis in contrast to what is suggested for the future. A shift to primarily using dagger codes will change the figures only marginally. Also, a few other minor redefinitions of groups have not been reflected in the tabulated data.

Some important lessons

Our detailed studies of multinational test data, necessary for the construction of the shortlist, yielded some important insights. In general, it was concluded that organization, recording practice, diagnostic labeling and coding are much more likely to explain the differences found between countries than morbidity differences. Any presentation of comparative hospital in-patient statistics should be supplemented with warnings about this kind of bias.

It is not possible to take diagnostic titles and rubrics at face value. One has to check the primary data and look at national and even local practice when interpreting statistical data showing differences between countries. Preferably, more detailed analyses should be performed such as studying frequencies for the detailed codes included in a shortlist group, whenever surprising and unexplained statistical differences are found.

The question has been raised by some people if it is necessary to use shortlists nowadays when computers have become so powerful that it is easy to collect and store even huge statistical data sets at a very detailed level. It is important to emphasize that the need for shortlists is not primarily a computer problem. The purpose of the recommended shortlist is to provide a broad and meaningful picture of the diagnostic panorama at hospitals, based on a thorough understanding of the structure of the classification and its use, thus hopefully avoiding the effects of some known coding practice differences and bridging over between classification revisions.

DRG as a basis for comparisons

In principle, the use of resource homogeneous casemix groups such as DRGs – which are based on both diagnoses and procedures – could be an advantage for hospital activity analysis compared to groups based on diagnostic information alone. This approach has also been used by OECD in their health statistics.

The Expert Group made a broad review of the casemix systems presently being used in European countries. They are (with country of origin) HCFA DRG (USA), AP-DRG and APR-DRG (3M USA), HRG (United Kingdom except Wales), AR-DRG (Australia), LKF (Austria), DBC (Netherlands), GHM (France) and NordDRG (Nordic countries).

A closer study was made of some of these systems as to comparability. It was found that direct comparison between similar groups in different DRG or DRG-like systems did not offer an easy way to comparisons. There are, for instance, major differences in the way pre-existing major complications and comorbidities are handled in different

groupers. OECD has collected and presented data according to DRG groups. It should be noted, however, that OECD has found it necessary to issue warnings for the lack of comparability of the results.

The main problem with the practical application of casemix groups is that grouping requires data on procedures, which are coded according to several different classifications presently being used in different countries. A single grouper that could be applied to all countries therefore calls for extensive mapping of existing procedure codes.

The Expert Group also considered a modified diagnostic shortlist based on DRG principles. The list was produced with the NordDRG grouper without using information on procedures (only using main diagnosis, gender and age). The test resulted in a list of 193 groups, 28 of which each contained more than 1 percent of all cases. The list is medically meaningful but the resource homogeneity is lost to a great extent. The Expert Group did not find that such a list was to be preferred to a traditional diagnostic shortlist. Therefore, the Expert Group decided not to further investigate the DRG alternative.

Grouping of external causes

The Expert Group was asked for advice by the Hospital Data Project if external cause information should be included in the common data set and made the following comments and suggestions.

External cause codes are included to a varying extent in European hospital data registration. Furthermore, in countries that do register this information, there is often considerable underreporting of external causes. This is due to the fact that hospital staff have difficulties in acquiring the relevant information and they are less motivated to register it.

However, other ways of collecting this type of information are costly. It could therefore be reasonable to collect available data in terms of an external cause code (from chapter XX of ICD-10) for cases with a main condition coded to chapter XIX. Even if ICD-10 offers the possibility of using Chapter XX codes in combination with diagnoses also from other chapters, the registration of external causes should here be restricted to cases with a main diagnosis of injuries, poisoning etc., corresponding to groups 115-125 in the diagnostic shortlist.

The external cause information should be registered apart from other diagnoses and be tabulated separately in a few broad groups. A suggested list comprising nine groups is presented as Table 2. Groups are defined both by ICD-10 Chapter XX codes and corresponding ICD-9 external cause codes. The ninth group is intended for cases with missing information regarding external cause.When data are reported as aggregated figures this "unknown" group could be calculated as the difference between the number

of cases with a main diagnosis in groups 115-125 and the number of (such) cases with a reported external cause.

Mostly there is only one external cause code reported for each hospital episode. An exception is the code E849 in ICD-9-CM, which is used for reporting place of occurrence. It is intended for use only together with other E-codes (E850-E869 and E880-E928). This code is only found in ICD-9-CM and is not an official ICD-9 code. Since it should be reported secondary to another E-code, it is not included it in the definitions for the groups of external causes. (Should E849 be reported as the only code for external cause it should be grouped with the EC8 group.)

The Expert Group concluded that further consideration and testing of the feasibility of external cause code registration is needed.

Procedure shortlists

The Core Group also asked for advice about a shortlist for surgical procedures. The Expert Group briefly reviewed some available shortlists and noted that there is great similarity among some of the lists. OECD and NOMESCO are both using quite limited lists with a similar selection of sentinel procedures. England presents data for a list of about 2600 surgical procedures, mainly grouped by anatomy. France has no shortlist and tabulates procedure data in a list of 7000 procedures.

The Expert Group agreed that a shortlist of the sentinel type should be recommended. It is not possible to prepare a shortlist that covers all surgery due to varying definitions of surgery and of what is included in different procedure classifications. Instead, a sentinel list of carefully described procedures should be put together. Different countries will have to match this list as close as possible through mapping from their national surgical classifications.

It is not possible to base the reporting on the concept of a main procedure per stay. Instead, all relevant procedures should be counted, which means that the same stay may contribute more than one operation. Certain operations may also be counted twice. As an example, it was mentioned that a prolaps operation that includes hysterectomy should be counted both as prolaps repair and as hysterectomy, if both these procedures are included in the list.

The Expert Group concluded that work on a sentinel shortlist of procedures had lower priority than the diagnostic shortlist for the Expert Group. Further work should include study of other surgical shortlists (including those of Australia, Canada and the USA) and should include the use of test data from some countries. This could be done by the Expert Group only at a later stage, if desired.

Based on these recommendations and suggestions from participating countries a tentative list of sentinel hospital procedures was developed by the HPD Management

Team. Individual members of the Expert Group also took part in this work. A list of 18 hospital procedures was used for the collection of test data of the HDP requested in August 2002.

Special issues referred to or initiated by the Expert Group

The Core Group had asked advice on the inclusion of *psychiatry and maternal care* in EU comparisons. Questions on coverage are mainly outside of the task of the Expert Group but it was agreed that the shortlist of diagnoses should include both psychiatric and obstetric groups and thus be usable also for these specialties. To a certain extent this may be true also for *long-term care and rehabilitation.*

There was also a wish for advice on *grouping by specialty*. Grouping of diagnostic information according to specialty does not seem feasible due to the great diagnostic overlap that exists between different specialties. The natural way to do this seems to be a registration of the specialty to which the patient was admitted as reported in the national registration. A common grouping of these national specialty lists then has to be agreed upon. Due to different national hospital organization, the value of such comparisons is questionable, however. The diagnostic shortlist will reflect traditional specialty boundaries only to a limited degree.

The Expert Group has also been asked about how *principal diagnosis and principal procedure* should be recorded in the future. It was agreed that for diagnostic information the definition of main condition as given in ICD-10, volume 2 (p. 96 ff) should be followed as far as possible. There was some concern that in some countries (e.g. France) the definition may differ slightly from this due to influence from the DRG system. As already mentioned, the Expert Group does not see a need for defining a principal procedure.

The Expert Group argued that the collection of anonymized, *person-based data* is to be preferred to collection of aggregated data. It was emphasized that collecting aggregated data for so many variables that one wants to cross-tabulate in this project will result in a matrix of such a great size that many cells will have only single or very few observations even at country level. This means that collection of aggregated data may involve similar confidentiality problems as collection of person-based data.

Given the political difficulty for the project to arrive at a decision on general routine reporting of person-based data, the Expert Group suggested that in the initial testing period one tries to work with anonymized, person-based data from countries which may be legally able and willing to provide such data sets. This would greatly enhance the possibilities for a flexible further development of data collection and analysis that may eventually lead to a more definite data collection structure for the HDP.

References

1. Björn Smedby: Comparing diagnostic information on hospital inpatients. Paper presented at the Core Group Meeting of the Hospital Data Project in Dublin 30-31 August 2001

2. Report from the Expert Group on Shortlists compiled by Björn Smedby. Presented at the Full Group Meeting of the EU Hospital Data Project in Lisbon 16-17 May 2002.

Appendix

Grouping ICD-10 and ICD-9 2003-03-13.xls (presented in a separate file)

Note: The appendix includes two tables. One gives the definitions, the reasoning for choosing these groups and a column that indicates in which groups changes and corrections have been made in relation to the list 2002-05-07 presented at the Lisbon meeting and the list used in the HDP request for collection of test data in August 2002. The other table of the appendix includes test data from the three countries that the Expert Group worked with originally (France, England, Sweden) and one additional country coding according to ICD-9-CM (Ireland). The data for Ireland has not been recalculated for some of the definition changes in the list (mainly relevant for groups 115 and 116).

This appendix has not been included with the HDP final report. See Annex 6 for details of the HDP Diagnoses shortlist.

Table 1. Number of groups in the recommended shortlist by ICD-10 chapter

ICD-10 Chapter	Heading	No. of groups
I	Certain infectious and parasitic diseases	6
II	Neoplasms	13
III	Diseases of the blood and bloodforming organs and certain disorders involving the immune mechanism	2
IV	Endocrine, nutritional and metabolic diseases	2
V	Mental and behavioural disorders	6
VI	Diseases of the nervous system	5
VII	Diseases of the eye and adnexa	2
VIII	Diseases of the ear and mastoid process	1
IX	Diseases of the circulatory system	11
X	Diseases of the respiratory system	8
XI	Diseases of the digestive system	20
XII	Diseases of the skin and subcutaneous tissue	3
XIII	Diseases of the musculoskeletal system and connective tissue	10
XIV	Diseases of the genitourinary system	10
XV	Pregnancy, childbirth and the puerperium	8
XVI	Certain conditions originating in the perinatal period	2
XVII	Congenital malformations, deformations and chromosomal abnormalities	1
XVIII	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	4
XIX	Injury, poisoning and certain other consequences of external causes	11
XXI	Factors influencing health status and contact with health services	5
	Total number of shortlist groups	130

Table 2. Suggested grouping for reporting of external causes

External Cause Group	Heading	ICD-10 codes	ICD-9 codes
EC1	Land transport accidents	V01-V89	E800-E829, E846-E848
EC2	Accidental falls	W00-W19	E880-E888
EC3	Accidental poisoning	X40-X49	E850-E869
EC4	Intentional self-harm	X60-X84	E950-E958
EC5	Assault	X85-Y09	E960-E968
EC6	Event of undetermined intent	Y10-Y34	E980-E988
EC7	Complications of medical and surgical care	Y40-Y84	E870-E879, E930-E949
EC8	Other external causes	remainder of V01-Y95	E830-E845, E890-E929, E959, E969, E970-E978, E989, E990-E999
EC9	External cause not known or not reported *Note*: This group applies only to cases with a main diagnosis in one of the shortlist groups 115-125		

Annex 10
Data and Metadata Request Papers

This Annex contains the data and metadata request circulated to project participants. The request was divided into three sections.

Section A specified the data files to be submitted, the file specifications and the data definitions (pages 159 to 182 below).

Section B Part 1 specified the data item definitions and asked for metadata on the data items. This section also asked for details of procedure coding for those countries not using ICD-9-CM part 3 to code their procedure data (pages 183 to 209 below).

Section B Part 2 specified the coverage definition and asked for metadata and other information on this issue (pages 210 to 218 below).

Hospital Data Project

Section A

Request for Test Data Files

You are requested to create and return the following files:

FILE 1: Diagnosis Data
FILE 2: External Cause Data
FILE 3: Procedures Data
FILE 4: Population Data

Section A

Request for Test Data Files

The purpose of this document

The purpose of this note is to provide a detailed specification of the four test data files requested from each participant country. **File 1** will contain diagnosis data. **File 2** will contain external cause data. **File 3** will contain procedures data**. File 4** will contain population data. Each of the four requests are described in detail below.

General Instructions

The following general instructions apply to **the first three files (i.e. diagnosis, external cause and procedures)**:

- **Data should refer to 1999 if possible, and to the latest available year if earlier than 1999.**
- **Files must be submitted in ASCII comma delimited format (i.e. ASCII CSV file).**
- **The last field in each row must be separated by a carriage return/line feed (i.e. ASCII character 13 followed by ASCII character 10).**
- **Combinations of classification variables (i.e. rows) for which there is no data should be excluded from the files.**
- **Use of commas: Commas can only be used in the files to separate variables and should not be used in any other circumstances (e.g. as a decimal place or a thousand separator).**

Please note that all statistical software in general use (e.g. SAS, SPSS, etc) will offer the option of outputting data in ASCII CSV format.

File 4 containing population data will be very small and can be submitted in any format which is convenient and which includes all the information required. ASCII format, spreadsheet, or text formats will all be acceptable.

Specific instructions regarding definition and formatting of variables for each file is given below:

FILE 1: Diagnosis

File Name

The diagnosis file should be named using the following rule:

diag + countrycode + year.csv

The countrycode for your country will be found in Code Table 1 attached.
The last two digits of the year should be used and should indicate the year to which the data refers.

Example: For Ireland, for 1999 diagnosis data, the name of the file will be:

diagirl99.csv

File Format

The diagnosis file will contain the 11 variables listed in the table below. The table also indicates the variable type (i.e. integer or character) and size (i.e. number of columns reserved for the variable).

File Format for File 1: Diagnosis

Variable Number	Variable Name	Type	Maximum Size
1	Year	Integer	4
2	Country Code	Character	3
3	Diagnosis Shortlist Code	Integer	4
4	Type of Admission Code	Integer	1
5	Gender Code	Integer	1
6	Age Range Code	Integer	2
7	Number of Inpatient Discharges	Integer	9
8	Number of Bed Days	Integer	10
9	Mean Length of Stay	Decimal	5.1
10	Median Length of Stay	Decimal	5.1
11	Number of Day Case Discharges	Integer	9

The codes to be used for each of the variables 2,3,4,5 and 6 are given in the attached code tables (i.e. Code Tables 1,2,3,4 and 5 respectively) and variables are further defined below.

The last five fields (i.e. 7,8 ,9,10 and 11) give the number of inpatient discharges, bed days, mean length of stay, median length of stay and day case discharges.

In other words, each combination of diagnosis, type of admission, gender and age range code (i.e. classification variables) will provide a row of data for which number of inpatient discharges, bed days, mean length of stay, median length of stay and day case discharges will be reported. Combinations of classification variables for which there is no data should be excluded from the files.

Variable Definitions

Each of the 11 variables is briefly defined below. Please refer to Section B, Part 1, 'Data Transformation Table' for detailed instructions on the definitions applying to each variable. **The last column of the 'Data Transformation Table' should also be completed to provide a description (i.e. metadata) about the transformation applied in each country.**

Variable 1: Year

Data should refer to hospital discharges occurring during the year 1999 if possible. If data for 1999 are not available please submit the most recent year available and give details of year being supplied in Participant Country Coverage Issues Table (Section B, Part 2).

Variable 2: Country Code

National data only are being collected. The country code is used to identify the country submitting the data. Include non-residents in your data. See attached Code Table 1 for list of country codes.

Variable 3: Diagnosis Shortlist Code

The primary diagnosis should be used. There should be one primary diagnosis per hospital discharge. See attached Code Table 2 for list of diagnosis shortlist codes. The list gives code numbers and indicates the groups of ICD-10 and ICD-9 codes corresponding to the shortlist categories. Please note that full ICD chapters are also included as separate codes.

Variable 4: Type of Admission Code

This variable is used to classify admissions as 'Planned' or 'Not Planned.' See attached Code Table 3.

Variable 5: Gender Code

This variable is used to classify hospital discharges as 'Male' or 'Female.' Exclude cases where gender is unknown if the case cannot be allocated to a male or female category. See attached Code Table 4.

Variable 6: Age Range Code

See attached Code Table 5. Exclude cases where age is unknown.

Variable 7: Number of Inpatient Discharges

The Common Data Set (CDS) definition of an inpatient is given in Section B, Part 1, 'Data Transformation Table' and Section B, Part 2, 'Coverage Issues Table'. The data file will give the numbers of inpatient discharges for each specified group (i.e. each combination of values for the classification variables above).

Variable 8: Number of Bed Days

Inpatients only contribute to bed days. Bed days are calculated by summing the lengths of stay (date of discharge minus date of admission) for all inpatients in the group.

Variable 9: Mean Length of Stay

Average length of stay for all inpatient discharges in each group. This variable should be reported with 1 decimal point (e.g. 5.1 days).

Variable 10: Median Length of Stay

The median is the 'middle' length of stay where all patients in a group are ranked from lowest to highest length of stay. It is included as a potentially more stable measure of central tendency in small groups where the mean can be skewed by a small number of very long lengths of stay. All statistical packages output median and mean.

Variable 11: Number of Day Case Discharges

A day case is a patient who is formally admitted with the intention of discharging the patient on the same day, and where the patient is in fact discharged on the same day. The data file will give the numbers of day case discharges for each specified group (i.e. each combination of values for the classification variables above).

FILE 2: External Cause

File Name

The external cause file should be saved using the following rule:

ext + countrycode + year.csv

The countrycode for your country will be found in Code Table 1 attached.

The last two digits of the year should be used and should indicate the year to which the data refers. If possible, data should refer to 1999.

Example: For Ireland, for 1999 external cause data, the name of the file will be:

extirl99.csv

File Format

The external cause file will contain 11 variables as listed in the table below. **Note that the format is exactly the same as File 1: Diagnosis with the exception of Variable 3 which refers to 'External Cause Shortlist Code'.**

File Format for File 2: External Cause

Variable Number	Variable Name	Type	Maximum Size
1	Year	Integer	4
2	Country Code	Character	3
3	External Cause Shortlist Code	Integer	4
4	Type of Admission Code	Integer	1
5	Gender Code	Integer	1
6	Age Range Code	Integer	2
7	Number of Inpatient Discharges	Integer	9
8	Number of Bed Days	Integer	10
9	Mean Length of Stay	Decimal	5.1
10	Median Length of Stay	Decimal	5.1
11	Number of Day Case Discharges	Integer	9

The Code Tables 1,3,4 and 5 also apply to the Variable Numbers 2, 4, 5, and 6 respectively in File 2.

Please refer to Code Table 7 for a list of the shortlist codes to be used for the classification of external causes.

Variable Definitions

The variable definitions given for File 1: Diagnosis **above should also be used for** File 2: External Cause **with the exception of Variable Number 3 which is defined below:**

Variable 3: External Cause Shortlist Code

Counts are to be based only on those cases with a main diagnosis that falls in the ICD chapter relating to injuries, poisonings and certain other consequences of external cause (i.e. ICD-10 codes S00 to T98, ICD-9 codes 800 to 999 or HDP shortlist diagnosis codes 1900 – see code table 2)**.** Thus cases with a main diagnosis in this chapter should also have an associated external cause and this is what is being counted in this table. If more than one external cause is coded, only the first mentioned external cause should be included. Where no external cause has been coded, this should be coded as missing.

Code Table 7 provides a written description of the external causes to be included in the test data and indicates the ICD-9 codes and ICD-10 codes pertaining to each external cause as well as the HDP codes to be used in the external cause data file.

Please refer to Section B, Part 1, 'Data Transformation Table' for a detailed definition and guidance on external cause. **The last column of the 'Data Transformation Table' should also be completed to provide a description (i.e. metadata) about the transformation applied in each country.**

FILE 3: Procedures

File Name

The procedures file should be saved using the following rule:

proc + countrycode + year.csv

The countrycode for your country will be found in Code Table 1 attached.

The last two digits of the year should be used and should indicate the year to which the data refers. If possible, data should refer to 1999.

Example: For Ireland, for 1999 procedures data, the name of the file will be:

procirl99.csv

File Format

The procedures file will contain 11 variables as listed in the table below. **Note that the format is exactly the same as File 1: Diagnosis and File 2: External Cause with the exception of Variable 3 which refers to 'Procedures Shortlist Code.'**

File Format for File 3: Procedures

Variable Number	Variable Name	Type	Maximum Size
1	Year	Integer	4
2	Country Code	Character	3
3	Procedures Shortlist Code	Integer	4
4	Type of Admission Code	Integer	1
5	Gender Code	Integer	1
6	Age Range Code	Integer	2
7	Number of Inpatient Discharges	Integer	9
8	Number of Bed Days	Integer	10
9	Mean Length of Stay	Decimal	5.1
10	Median Length of Stay	Decimal	5.1
11	Number of Day Case Discharges	Integer	9

The Code Tables 1,3,4 and 5 also apply to the Variable Numbers 2, 4, 5, and 6 respectively in File 3.

Please refer to Code Table 6 for a list of the codes to be used for the classification of procedures.

Variable Definitions

The variable definitions given for File 1: Diagnosis **above should also be used for** File 3: Procedures **with the exception of Variable Number 3 which is defined below:**

Variable 3: Procedures Shortlist Code

Counts are to be based on **all recorded procedures.** This differs from **File 1: Diagnosis** where only 1 diagnosis (i.e. primary diagnosis) per hospital discharge is counted. In other words, a patient may be counted more than once in **File 3: Procedures** if more than one listed procedure is carried out on the patient during a hospital stay. However, where more than one code included under the same shortlist group is reported for the same hospital episode, then only one should be counted. For example, Percutaneous Transluminal Coronary Angioplasty (PTCA) consists of four separately coded procedures. Where more than one of four listed procedures is coded in the same hospital stay they should counted as one.

Code Table 6 provides a written description of the 'sentinel' procedures to be included in the test data and indicates the ICD-9-CM part 3 codes pertaining to each procedure. Given the number of different coding systems for classifying procedures in different countries, each country is asked to specify the classification system used and the mapping of codes to correspond with the shortlist (see annex 3 of Section B Part 1). Please note that for the last procedure listed, Mastectomy, counts are to be based on female patients only. This will enable gender specific population rates to be calculated.

Please refer to Section B, Part 1, Annex 3 for a detailed definition and guidance on procedures and the relevant photocopied pages (circulated by mail) from the Educational Annotation of ICD-9-CM (4th Edition, October 1998).

FILE 4: Population

Population data are requested by age (see Code Table 5) and gender (see Code Table 4) for 1999 or for the most recent available year if 1999 data are not available.

File Name

The population file should be saved using the following rule:

pop + countrycode + year.txt

The countrycode for your country will be found in Code Table 1 attached.

The last two digits of the year should be used and should indicate the year to which the data refers. If possible, data should refer to 1999.

Example: For Ireland, for 1999 population data, the name of the file will be:

popirl99.txt

File Format

For population data returned in ASCII CSV format the table below will apply. Please note that population data, for 1999 or nearest year, are required separately for males and females and for the age groups specified in Code Table 5. This data will fit on a single printed page and it can be supplied as a word document, spreadsheet or ASCII file whichever is most convenient to you.

File Format for File 4: Population

Variable Number	Variable Name	Type	Size
1	Year	Integer	4
2	Country Code	Character	3
3	Gender Code	Integer	1
4	Age Range Code	Integer	2
5	Number of Persons	Integer	9

Variable Definitions

If submitting population data in ASCII format please use supplied codes. Country codes are listed in Code Table 1. Gender codes are given in Code Table 4. Age range codes are given in Code Table 5.

Example of Data File

Below is a small example of how a file containing test data should look. The file format will be the same for Files 1, 2 and 3. Only variable 3 will change for diagnosis, external cause and procedure respectively. This example is for diagnosis data (file 1). Each variable is separated by a comma and variables appear in the following order:

Variable	Variable Name
1	Year
2	Country Code
3	Diagnosis Shortlist Code
4	Type of Admission Code
5	Gender Code
6	Age Range Code
7	Number of Inpatient Discharges
8	Number of Bed Days
9	Mean Length of Stay
10	Median Length of Stay
11	Number of Day Case Discharges

Sample file – diagirl99.csv:

```
1999,irl,0101,1,1,1,532,3458,6.5,5.1,0
1999,irl,0101,1,1,2,452,2598,5.7,5.1,0
1999,irl,0101,1,1,3,635,3687,5.8,5.1,0
1999,irl,0101,1,1,4,357,2358,6.6,5.1,0
1999,irl,0101,1,1,5,102,365,3.6,4.9,0
1999,irl,0101,1,1,6,116,458,3.9,4.9,0
1999,irl,0101,1,1,7,33,115,3.5,4.9,0
1999,irl,0101,1,1,8,16,68,4.3,4.8,0
1999,irl,0101,1,1,9,45,301,6.7,5.1,0
1999,irl,0101,1,1,10,48,265,5.5,5.1,0
1999,irl,0101,1,1,11,98,463,4.7,5.1,0
1999,irl,0101,1,1,12,32,68,2.1,5.0,0
1999,irl,0101,1,1,13,156,958,6.1,5.0,0
1999,irl,0101,1,1,14,354,2564,7.2,5.0,0
1999,irl,0101,1,1,15,456,1015,2.2,2.0,0
1999,irl,0101,1,1,16,735,9845,13.4,7.9,0
1999,irl,0101,1,1,17,543,3284,6.0,7.9,0
1999,irl,0101,1,1,18,1135,8795,7.7,7.9,0
1999,irl,0101,1,1,19,1313,10895,8.3,7.9,0
1999,irl,0101,1,1,20,1258,16895,13.4,7.9,0
1999,irl,0101,1,1,21,1456,18201,12.5,7.9,0
1999,irl,0101,1,2,1,543,3458,6.4,5.1,0
1999,irl,0101,1,2,2,658,2598,3.9,5.1,0
1999,irl,0101,1,2,3,985,3687,3.7,5.1,0
1999,irl,0101,1,2,4,489,2358,4.8,5.1,0
1999,irl,0101,1,2,5,99,365,3.7,4.9,0
1999,irl,0101,1,2,6,120,458,3.8,4.9,0
```

CODE TABLES

1 TO 7

Code Table Number	Table Name
1	Country Code
2	Diagnosis Shortlist Code
3	Type of Admission
4	Gender
5	Age
6	Procedures Shortlist Code
7	External Shortlist Code

Code Table 1: Country Codes

Please note that the country codes are the only character variable in the data set.

Country Codes

Country Code	Name of Country
A	Austria
B	Belgium
D	Germany
DK	Denmark
E	Spain
EL	Greece
F	France
FIN	Finland
I	Italy
IRL	Ireland
IS	Iceland
L	Luxembourg
NL	Netherlands
P	Portugal
S	Sweden
***UK** constituent countries as follows:*	
ENG	England
NIR	Northern Ireland
SCO	Scotland
WAL	Wales

Code Table 2: Diagnosis Shortlist Codes

The table below has 5 columns.

Column 1 gives the code to be used in the submission of test data.

Column 2 provides a text description of the categories of illness covered by the code.

Column 3 gives the ICD-10 codes which will need to be grouped to produce the test data set for each shortlist item.

Column 4 gives the corresponding ICD-9 codes for those countries using the ICD-9 classification.

Column 5 indicates the ICD Chapter in both ICD-9 and 10 to which the codes are related.

Note that the test data will include totals for each corresponding ICD-10 Chapter.

The diagnoses shortlist has not been repeated here again. Refer to Annex 6 for details of the list.

Code Table 3: Type of Admission Codes

Please refer to Section B, Part 1, 'Data Transformation Table,' for guidance on the coding of Type of Admission. Annex 1 of Section B, Part 1, summarises results of inventory on Type of Admission for each country. Those countries with 'Other' categories should allocate as they think most appropriate to 'Planned Admission' or 'Not Planned Admission.' In many cases/countries, the 'Other' category refers to healthy liveborn babies which will not be covered in the test data set (see Section B, Part 2, 'Participant Country Common Data Set Coverage Issues')

Type of Admission Codes

1=Planned Admission
2=Not Planned Admission

Code Table 4: Gender Codes

Only codes of 'Male' or 'Female' are permitted. In some countries, 'Unknown' can be recorded. Where there is a process for allocation 'Unknown' to 'Male' or 'Female' please use this. Indicate procedure used and/or percentage of 'Unknowns' in relevant metadata section (see Section B, Part 1, Data Transformation Table).

Gender Codes

1 = Male
2 = Female

Code Table 5: Age Range Codes

Details of how you calculate 'age' for hospital data in your country should be supplied as metadata (see Section B, Part 1, 'Data Transformation Table'). Please exclude cases where age is unknown.

Age Range Codes

Age Range Codes		
1	**=**	**" < 1"**
2	**=**	**" 1 to 4"**
3	**=**	**" 5 to 9"**
4	**=**	**"10 to 14"**
5	**=**	**"15 to 19"**
6	**=**	**"20 to 24"**
7	**=**	**"25 to 29"**
8	**=**	**"30 to 34"**
9	**=**	**"35 to 39"**
10	**=**	**"40 to 44"**
11	**=**	**"45 to 49"**
12	**=**	**"50 to 54"**
13	**=**	**"55 to 59"**
14	**=**	**"60 to 64"**
15	**=**	**"65 to 69"**
16	**=**	**"70 to 74"**
17	**=**	**"75 to 79"**
18	**=**	**"80 to 84"**
19	**=**	**"85 to 89"**
20	**=**	**"90 to 94"**
21	**=**	**"95 and over"**

Code Table 6: Procedure Shortlist Codes

Due to project constraints and to the variety of procedure classifications in use throughout Europe, it has not been possible to develop a 'comprehensive' procedure list at this stage. The attached list represents a small number of 'sentinel' procedures selected for inclusion in the test phase. Further extension and revision of the list will be required based on examination of results.

Please note that all occurrences of each procedure should be recorded, not just the 'main' procedure. A single hospital stay may therefore contribute more than one procedure. However, where more than one code included under the same shortlist group is reported for the same hospital episode, then only one should be counted. For example, in the table below HDP Code 5: Percutaneous Transluminal Coronary Angioplasty (PTCA) consists of four separately coded procedures. Where more than one of four listed procedures is coded in the same hospital stay they should counted as one. Please note also that counts for HDP Code 18: Total Mastectomy are to be based on female patients only as these procedures can also be carried out on men (but are not very common). This will enable sex-specific population based rates to be calculated.

The table below indicates the code to be used, the name of the procedure, and the corresponding ICD-9-CM codes. Countries which do not use ICD-9-CM procedure codes will need to derive the equivalent codes based on their own procedure classification systems. These transformations should be supplied as metadata under Section B, Part 1, Annex 3, 'Common Data Set Procedure Shortlist'.

Table 6: Procedure Shortlist Codes

HDP Code	Procedure	ICD–9–CM Part 3
1	Release of Carpal Tunnel	04.43: Release of Carpal Tunnel – The surgical relief of compression of the median nerve at the wrist
2	Thyroidectomy, Partial and Total	06.2: Unilateral Thyroid Lobectomy 06.3: Other partial Thyroidectomy 06.4: Complete Thyroidectomy 06.5: Substernal Thyroidectomy 06.6: Excision of Lingual Thyroid
3	Operations for Cataracts	13.1: Intracapsular extraction of lens 13.2: Extracapsular extraction of lens by linear extraction 13.3: Extracapsular extraction of lens by simple aspiration (and irrigation) technique 13.4: Extracapsular extraction of lens by fragmentation and aspiration technique 13.5: Other extracapsular extraction of lens 13.6 : Other Cataract Extraction
4	Myringotomy with Insertion of Tube	20.01: Myringotomy with insertion of tube.
5	Percutaneous Transluminal Coronary Angioplasty with or without insertion of stent(s) (please note that PTCA excludes 36.03, 36.04)	36.01: Single Vessel Percutaneous Transluminal coronary angioplasty (PTCA) or Coronary atherectomy without mention of thrombolytic agent 36.02: Single Vessel Percutaneous Transluminal coronary angioplasty (PTCA) or Coronary atherectomy with thrombolytic agent 36.05: Multiple vessel Percutaneous Transluminal coronary angioplasty (PTCA) or Coronary atherectomy performed during the same operation, with or without mention of thrombolytic agent 36.06 Insertion of Coronary Artery Stent(s)

Table 6: Procedure Shortlist Codes (continued)

HDP Code	Procedure	ICD–9–CM Part 3
6	Coronary artery bypass graft	36.1 : Bypass anastomosis for heart revascularization
7	Varicose veins	38.5 : Ligation and stripping of varicose veins
8	Colonoscopy with or without Biopsy	45.23 : Colonoscopy – flexible fiber colonoscopy 45.25: Closed [endoscopic] biopsy of large intestine
9	Appendectomy (Note excludes 47.1: Incidental Appendectomy)	47.0: Excision of appendix 47.01: Laparoscopic Appendectomy 47.09: Other Appendectomy
10	Cholecystectomy	51.2: Cholecystectomy – Excision of all or part of the gallbladder
11	Reparir of Inguinal Hernia	53.0: Unilateral Repair of inguinal hernia
12	Transurethral Prostatectomy	60.2: Transurethral Prostatectomy
13	Other Prostatectomy	60.3: Suprapubic Prostatectomy 60.4: Retropubic Prostatectomy 60.5: Radical Prostatectomy 60.6 : Other Prostatectomy
14	Diagnostic Dilation and Curettage (D&C) (note this excludes 69.01: D&C for termination of pregnancy and 69.02: D&C following delivery or abortion)	69.09: Diagnostic D&C – A form carried out to examine the removed uterine contents for disease characteristics

Table 6: Procedure Shortlist Codes (continued)

HDP Code	Procedure	ICD–9–CM Part 3
15	Cesarean Section (note: excludes 74.3: Removal of Extratubal Ectopic Pregnancy and 74.9: Cesarean Section of Unspecified Type)	74.0: Classical Cesarean Section 74.1: Low Cervical Cesarean Section 74.2: Extraperitoneal Cesarean Section 74.4: Cesarean Section of Other Specified Type
16	Hip replacement, Total and Partial	81.51: Total Hip Replacement 81.52 : Partial Hip Replacement
17	Knee replacements	81.54 Total Knee Replacement
18	Total Mastectomy **(Counts to be based on women only)**	85.4 : Mastectomy

Code Table 7: External Cause Shortlist Codes

Counts are to be based only on those cases with a main diagnosis that falls in the ICD chapter relating to injuries, poisonings and certain other consequences of external cause (i.e. ICD-10 codes S00 to T98, ICD-9 codes 800 to 999 or HDP shortlist diagnosis codes 1900 – see code table 2)**.** Thus cases with a main diagnosis in this chapter should also have an associated external cause and this is what is being counted in this table. If more than one external cause is coded, only the first mentioned external cause should be included. Where no external cause has been coded, this should be coded as missing (HDP External Cause Code 9).

HDP External Cause Code	Heading	ICD-10 codes	ICD-9 codes
1	Land transport accidents	V01-V89	E800-E829, E846-E848
2	Accidental falls	W00-W19	E880-E888
3	Accidental poisoning	X40-X49	E850-E869
4	Intentional self-harm	X60-X84	E950-E958
5	Assault	X85-Y09	E960-E968
6	Event of undetermined intent	Y10-Y34	E980-E988
7	Complications of medical and surgical care	Y40-Y84	E870-E879, E930-E949
8	Other external causes	remainder of V01-Y95	E830-E845, E890-E929, E959, E969, E970-E978, E989, E990-E999
9	External cause not known or not reported, i.e. missing data. Note: This group applies only to cases with a main diagnosis in the HDP Diagnosis shortlist code 1900.		

Hospital Data Project

Section B
Request for Metadata

Part 1

Data Items for Inclusion in the Common Data Set

The purpose of this document

The purpose of this document is to detail the descriptive metadata on data items required for submission to the Common Data Set. The completion and return of this document is also the means by which the Project documents the transformations that each country is making to its own hospital activity data set in order to satisfy the definitions of the Common Data Set.

Contents of this Document

Data Transformation Table
In the Data Transformation Table below, column one details the data item being collected for the Common Data Set. Column two details the definition of this data item for the Common Data Set. Column three provides guidance on the definition of this data item; in particular, this guidance may ask for additional information/metadata to be supplied by countries submitting data to the common data set. This additional information/metadata is to be inserted in column four. The guidance information in column three refers to various annexes. The purpose of each annex is explained in the guidance information.

Annexes
Annex 1 – Type of Admission
Annex 2 – Diagnostic Shortlist
Annex 3 – Procedure Shortlist
Annex 4 - Example of completed Data Transformation Table. The purpose of this annex is to provide you with an example of how you should complete your Data Transformation Table.
Annex 5 – External Cause Shortlist

Actions for Participant Countries

- **Complete the Data Transformation table (if you have not already done so) by filling in details in column four and return it to Val Tyler (METyler58@aol.com) and copy to Ciara O'Shea (Ciara_O'Shea@health.irlgov.ie).**

- **If you do not use ICD-9-CM to code your hospital procedures, complete the table in Annex 3 and return it to Val Tyler (METyler58@aol.com) and copy to Ciara O'Shea (Ciara_O'Shea@health.irlgov.ie).**

Some MS have already provided information on the data items within the previously distributed Proforma tables 1 and 2. We are not asking these countries to complete the forms again, but we may need to come back to them for clarification. However as we have made some changes to the pilot data set, it would be helpful if these countries could look at parts 1 and 2 of Section B to ensure they are content with their previous contribution. If not then please provide updated information.

Data Items for Inclusion in the Common Data Set - Data Transformation Table

Please provide the information requested in the far right hand column of Part 1 below. For data items that have CDS coding categories specified, please list the codes in your national data set that are grouped to give each CDS code.

Please refer, where advised in the tables, to Annex 1 (Type of Admission), Annex 2 (diagnostic shortlist) and Annex 3 (procedure shortlist). Also, to help you complete this form, you may like to look at the example of a completed form provided at Annex 4.

Name of Country Completing the Table: _____

(please type in the name of your country in the space provided above)

Data item	CDS definition	Guidance on information requested	Please provide information in this column
Gender	3 Male 4 Female	If some records in your national data are coded to gender categories other than 'male' or 'female' (e.g. 'unknown') and if you have a process for allocating "unknowns" to "males" or "females" then please use this. If you do not have such a process then please exclude these records. It would be helpful to get some idea of the size and percentage of the gender coded to categories other than male or female. Please give details in the 4th column.	
Age group	<1, 1-4, 5-9,10-14,15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85-89, 90-94, 95 and over.	Please state whether your data comply with this CDS requirement; if not, please give details. If age is unknown please exclude. Please give details of how you calculate age in your data set.	

Data item	CDS definition	Guidance on information requested	Please provide information in this column
Type of admission	3 Planned 4 2 Not Planned	Please see Annex 1 for distribution of "planned", "not planned" and "other" admissions. Those countries (UK and Belgium) with "other" categories please allocate as you think most appropriate to "planned" or "not planned" and record details in column 4. If countries do not agree with the distribution given in Annex 1, then please provide information in the 4th column.	
		Please provide any further details on how you define "planned" and "not planned".	

Data item	CDS definition	Guidance on information requested	Please provide information in this column
Primary Diagnosis/Main Diagnosis.	The primary diagnosis recorded should be the 'main condition', as defined in ICD–10, Vol 2, p 96. There should be one primary diagnosis per hospital discharge. Countries should group primary diagnosis data according to the diagnosis shortlist at Annex 2.	Please state which classification is used to record diagnosis in your country (ICD–10, ICD–9–CM, etc). Please state whether your can provide data grouped according to the categories defined in Annex 2. If not, please give details.	

Data item	CDS definition	Guidance on information requested	Please provide information in this column
External Cause	Counts are only based on those cases which fall into the ICD chapter on Injury and Poisoning (ICD-10 codes S00 to T98 or ICD-9 codes 800 to 999). Countries should group external cause data according to the external cause shortlist at Annex 5.	Please state which classification is used to record external cause in your country (ICD–10, ICD–9–CM, etc). Please state whether your can provide data grouped according to the categories defined in Annex 5. If not, please give details.	

Data item	CDS definition	Guidance on information requested	Please provide information in this column
Operative procedures	Counts to be based on all recorded procedures—there may be more than one procedure per hospital discharge. Countries that hold records other than hospital discharges on their national database (e.g. department discharges; consultant episodes), should base the count of procedures on all records, not just hospital discharge records. Countries should group procedure data according to the shortlist at Annex 3.	Please state whether your data comply with this CDS requirement; if not, please give details. Please state which classification is used to record procedure in your country (e.g. ICD–9–CM Part 3; Nordic Classification of Surgical Procedures). **For those countries that do not use ICD-9-CM Part 3 for coding procedures** please detail the matching codes from the procedure coding system in your country. This information should be provided within table 1 of Annex 3.	

Data item	CDS definition	Guidance on information requested	Please provide information in this column
Total inpatient discharges and deaths in hospital. (exclude day cases)	An inpatient is a patient who is formally admitted and stays for a minimum of one night. Patients admitted as inpatients but who do not remain overnight for some reason (e.g. death) should be recorded as inpatients. Patients admitted with the intention of discharge on the same day, but who subsequently stay in hospital over night, should also be recorded as inpatients.	Please state whether your data comply with this CDS requirement; if not, please give details	
Total day case discharges	A day case is a patient who is formally admitted with the intention of discharging the patient on the same day, and where the patient is in fact discharged on the same day	Please state whether your data comply with this CDS requirement; if not, please give details	
Total bed days	Calculated as sum of (discharge date minus admission date) for all deaths and discharges in each group; inpatients only contribute to bed days (day cases are excluded).	Please state whether your data comply with this CDS requirement. If you have used a different method to calculate total bed days please provide details.	

Data item	CDS definition	Guidance on information requested	Please provide information in this column
Mean length of stay	Calculated as total bed days divided by total number of inpatients in each group. The calculation is based on both deaths and discharges.	Please state whether your data comply with this CDS requirement; if not, please give details	
Median length of stay	Median length of stay (discharge date minus admission date) for inpatient deaths and discharges, for each group. Median is calculated by ordering the length of stay in ascending order and selecting the middle value.	Please state whether your data comply with this CDS requirement; if not, please give details	

TYPE OF ADMISSION

The following table lists, for each country, coding for Type of Admission, grouped into the categories 'planned', 'not planned' and 'other'. This distribution has been carried out by HDP Management and therefore does not necessarily reflect the correct distributions with respect to each country.

Country	Planned	Not Planned	Other
Austria	Not available	Not Available	Not Available
Belgium	3: Planned admission 4: Day hospitalization admissions 6: Placement M, L: Long Stay	1: Emergency admission by the 100 or SMUR 2: Unexpected admission, in emergency	0: Unknown 8: Born in hospital 5: Return
Denmark	Outstanding query	Outstanding query	Outstanding query
United Kingdom, of which:			
England and Wales	11: Elective – from a waiting list 12: Elective – which was booked 13: Elective – planned	21: Emergency – via A&E services including casualty department of the provider. 22: Emergency – via General Practitioner (GP) 23: Emergency - via bed bureau (including central bureau) 24: Emergency – via Consultant outpatient clinic 25: Domiciliary visits by consultants (Wales only) 27: Via NHS Direct Services (Wales only)	&Space: Not known (code 99 from 1996/97) – England only. 31: Maternity – where the baby was delivered after the mother's admission 32: Maternity – baby delivered before admission 81: Other – patient transferred from another healthcare provider (but excluding emergencies – see 28- England only) May be used for elective or emergency transfer from other hospital provider - Wales only

Continued…

Country	Planned	Not Planned	Other
England and Wales (cont'd)		28: Emergency – other means (including patients who arrive via the A&E department of another healthcare provider)	82 Other – babies born in health care provider 83 Other – babies born outside the healthcare provider (except when born at home as intended) Spaces – other maternity event (code 98 from 1996/97) – England only
Northern Ireland	11: Elective – waiting list 12: Elective – booked 13: Elective – planned	21: Emergency –A&E Department in same Board 22: Emergency – General Practitioner 23: Emergency – Bed Bureau/Central Bed Bureau 24: Emergency – Consultant Outpatient Clinic 25: Emergency – Domiciliary Visit by Consultant 28: Emergency – Other means	&: Not Known 31: Maternity – Ante Partum 32 Maternity – Post Partum 81: Other – Patients from another hospital 82: Other – Babies born in this hospital 84: Other – Baby born en route (home confinement not meant)
Scotland *Continued…*	Routine Admission 11: Routine elective (i.e. from waiting list as planned, excludes planned transfers) 12: Patient admitted on day of decision to admit, or following day, not for medical reasons, but because suitable resources are available 18: Planned transfers 19: Routine Admission, type not known 10: Routine Admission, no additional detail added	Urgent Admission 21: Patient delay (for domestic, legal or other practical reasons) 22: Hospital delay (for administrative or clinical reasons e.g. arranging appropriate facilities, for test to be carried out, specialist equipment, etc.) 20: Urgent Admission, no additional detail added Emergency Admission 31: Patient Injury - Self Inflicted (Injury or Poisoning) 32: Patient Injury - Road Traffic Accident (RTA) 33: Patient Injury - Home Incident (including Assault or Accidental Poisoning in the home)	41: Home Birth (SMR02 only) 42: Maternity Admission (SMR02 only) 43: Neonatal Admission (SMR11 only) 48: Other 40: Other admission types, no additional detail added

Country	Planned	Not Planned	Other
Scotland (cont'd)		34: Patient Injury - Incident at Work (including Assault or Accidental Poisoning at work) 35: Patient Injury - Other Injury (including Accidental Poisoning other than in the home) – not elsewhere classified 36: Patient Non-Injury (e.g. stroke, MI, Ruptured Appendix) 38: Other Emergency Admission (including emergency transfers) 39: Emergency Admission, type not known 30: Emergency Admission, no additional detail added	
Finland	2: planned admission 3: transferred from out-patient clinic 4: moved from another main specialty	1: emergency	
France	Information not collected	Information not collected	Information not collected
Germany	Information not collected	Information not collected	Information not collected
Greece	Information not collected	Information not collected	Information not collected
Iceland (Up to 1999, 2 codes only; from 1999 onwards, 3 codes)	Up to 1999: Elective From 1999 onwards: 3: elective	Up to 1999: Acute From 1999 onwards: 1: acute 2: semi-acute (patient on waiting list but due to deterioration has to be admitted earlier than planned)	

Country	Planned	Not Planned	Other
Ireland	0: Deferred Admission 1: Normal admission from waiting list 2: Planned repeat admission 3: Transferred in from another acute hospital <u>From 2002</u>: 1: Elective – The patient's condition permits adequate time to schedule the availability of suitable accommodation. An elective admission can be delayed without substantial risk to the health of the individual. 2: Elective Readmission – Patient admitted electively to continue ongoing treatment or care. 3: Elective Maternity - The patient is admitted electively related to their obstetrical experience (From conception to 6 weeks post delivery) 7: New Born – Baby born in hospital and admitted to the neonatal unit for care or observation.	4: Emergency – deliberate self-inflicted injury/poisoning 5: Emergency road traffic accident 6: Emergency – home accident 7: Emergency – other injury/poisoning 8: Emergency – other than injury/poisoning 9 Emergency – readmission following treatment <u>From 2002</u>: 4: Emergency – The patient requires immediate care and treatment as a result of a severe, life threatening or potentially disabling condition. Generally, the patient is admitted through the A&E Department. 5: Emergency Readmission – This is an unscheduled readmission following previous spell of treatment in same hospital and relating to the treatment or care previously given. 6: Emergency Maternity – The patient is admitted as an emergency related to their obstetrical experience (From conception to 6 weeks post delivery)	
Italy	1: Planned and not urgent admission 2: Planned admission with procedures carried out before the admission.	3: Urgent admission 4: Compulsory admission	
Luxembourg	Elective - Illness Maternity Accident	Emergency – Illness Maternity Accident	

Country	Planned	Not Planned	Other
Netherlands	Non-acute	Acute	
Portugal	01: planned admission	02: not planned admission	
Spain	Awaiting information	Awaiting information	Awaiting information
Sweden	Planned	Not planned admission	

The recommend diagnoses shortlist is not repeated here. See Annex 6 for details.

Procedure Shortlist for the Common Data Set

The purpose of this Annex

The purpose of this annex is to present to you the procedure shortlist for the common data set and how it is defined in ICD-9-CM part 3. It is also designed to enable you to record details of how you propose to map the procedure coding system in your country on to the ICD-9-CM part 3 coding system if you do not use ICD-9-CM part 3.

Completing this annex

The procedure shortlist is presented in the attached table 1. Column one gives the name of the procedure.

Column two gives details of the definition of these procedures using ICD-9-CM part 3. Reference also the relevant pages from the Educational Annotation of ICD-9-CM (4th Edition, October 1998). These photocopies (to be circulated by mail) are to provide you with more detail on the definition of the listed procedures. Please note carefully any inclusion or exclusion notes provided. Column two contains coding details at the highest level necessary to identify the procedure. Thus a three-digit code implies the inclusion of any four-digit subdivisions of that code.

Example:
'Thyroidectomy, partial and total' has been defined as 06.2, 06.3, 06.4, 06.5 and 06.6. The code 06.3 includes the subdivisions 06.31 and 06.39 and code 06.5 includes the subdivisions 06.50, 06.51, 06.52 (see attached photocopies).

Thus it will be necessary to read the circulated photocopies in conjunction with details in column two in order to fully understand the definition of the procedure shortlist ***(an electronic version of 1998 version of ICD-9-CM part 3 is available on www.cdc.gov/nchs/icd9.htm in rich text format (.rtf) via FTP).***

Column 3 is to be filled in by countries which do not use ICD-9-CM part 3 for coding procedures. Please detail the matching codes from the procedure coding system in your country in this column.

Please provide any additional information on the coding system you use so that the metadata for the procedure shortlist is as comprehensive as possible.

Background to Procedure Shortlist

The shortlist in Table 1 is based on paper HDP/02/11 which was presented to the Full Group meeting in Lisbon, May 2002. HDP/02/11 took into consideration related work already examined in HDP/02/3.

Due to lack of time and resources, the Hospital Data Project was unable to convene an Expert Group to develop a procedure shortlist. However the Expert Group on Diagnosis Shortlist was asked to briefly examine the issue. In paper HDP/02/5a the Expert Group on the Diagnosis Shortlists recommended that a shortlist of the carefully described sentinel procedures should be developed for the Common Data Set. The Expert Group also recommended that counts of procedures in the Common Data Set should be based on all recorded procedures, not just the 'main' procedure, so that a single hospital stay may contribute more than one listed procedure.

However, where more than one code included under the same shortlist group is reported for the same hospital episode, then only one should be counted. For example, in the table below the Percutaneous Transluminal Coronary Angioplasty (PTCA) group consists of four separately coded procedures. Where more than one of four listed procedures is coded in the same hospital stay they should counted as one.

Following discussions at the Full Group Meeting and recommendations of the Expert Group, it was decided to collect data on a small number of procedures at the initial pilot phase of the project. The recommendations and comments from Participant Countries supplied subsequent to the Full Group Meeting were also taken on board.

As indicated above the attached list takes into consideration the work of related work in the area (see HDP/02/3). It has also taken into account the following criteria

- High cost procedures
- High volume procedures
- Boarder line procedures between in-patient and day-cases
- Procedures with public health implications
- Variety based on the different systems within the human body

It was also considered important to try and choose procedures that are easy to define to make mapping from one coding system to another easier.

Actions for Participant Countries

Participant Countries who do not use ICD-9-CM part 3 to code their procedures are to fill in column three (see section above – Completing this Annex) of the attached table 1 and return it to Val Tyler (METyler58@aol.com and copied to Ciara O'Shea (Ciara_O'Shea@health.irlgov.ie)) along with any additional information on their coding system that would be useful for inclusion in metadata.

Table 1: Procedure shortlist for the HDP common data set

Procedure	**ICD–9–CM Part 3**	**If you are not using ICD-9-CM Part 3 as the classification system for coding procedures please insert the equivalent codes from your coding system in this column**
Release of Carpal Tunnel	04.43: Release of Carpal Tunnel – The surgical relief of compression of the median nerve at the wrist	
Thyroidectomy, partial and total	06.2: Unilateral Thyroid Lobectomy 06.3: Other partial Thyroidectomy 06.4: Complete Thyroidectomy 06.5: Substernal Thyroidectomy 06.6: Excision of Lingual Thyroid	
Operations for Cataracts	13.1: Intracapsular extraction of lens 13.2: Extracapsular extraction of lens by linear extraction 13.3: Extracapsular extraction of lens by simple aspiration (and irrigation) technique 13.4: Extracapsular extraction of lens by fragmentation and aspiration technique 13.5: Other extracapsular extraction of lens 13.6 : Other Cataract Extraction	
Myringotomy with Insertion of Tube	20.01: Myringotomy with insertion of tube.	

Table 1 (continued)

Procedure	**ICD–9–CM**	**If you are not using ICD-9-CM Part 3 as the classification system for coding procedures please insert the equivalent codes from your coding system in this column**
Percutaneous Transluminal Coronary Angioplasty with or without insertion of stent(s) (please note that PTCA excludes 36.03, 36.04)	36.01: Single Vessel Percutaneous Transluminal coronary angioplasty (PTCA) or Coronary atherectomy without mention of thrombolytic agent 36.02: Single Vessel Percutaneous Transluminal coronary angioplasty (PTCA) or Coronary atherectomy with thrombolytic agent 36.05: Multiple vessel Percutaneous Transluminal coronary angioplasty (PTCA) or Coronary atherectomy performed during the same operation, with or without mention of thrombolytic agent 36.06 Insertion of Coronary Artery Stent(s)	
Coronary artery bypass graft	36.1 : Bypass anastomosis for heart revascularization	
Varicose veins	38.5 : Ligation and stripping of varicose veins	
Colonoscopy with or without Biopsy	45.23 : Colonoscopy – flexible fiber colonoscopy 45.25: Closed [endoscopic] biopsy of large intestine	
Appendectomy (Note excludes 47.1: Incidental Appendectomy)	47.0: Excision of appendix 47.01: Laparoscopic Appendectomy 47.09: Other Appendectomy	
Cholecystectomy	51.2: Cholecystectomy – Excision of all or part of the gallbladder	
Repair of Inguinal Hernia	53.0: Unilateral Repair of inguinal hernia	

Table 1 (continued)

Procedure	**ICD–9–CM**	**If you are not using ICD-9-CM Part 3 as the classification system for coding procedures please insert the equivalent codes from your coding system in this column**
Transurethral Prostectomy	60.2: Transurethral Prostatectomy	
Other Prostatectomy	60.3: Suprapubic Prostatectomy 60.4: Retropubic Prostatectomy 60.5: Radical Prostatectomy 60.6 : Other Prostatectomy	
Diagnostic Dilation and Curettage (D&C) (note this excludes 69.01: D&C for termination of pregnancy and 69.02: D&C following delivery or abortion)	69.09: Diagnostic D&C – A form carried out to examine the removed uterine contents for disease characteristics	
Cesarean Section (Please note this excludes 74.3: Removal of Extratubal Ectopic Pregnancy and 74.9: Cesarean Section of Unspecified Type)	74.0: Classical Cesarean Section 74.1: Low Cervical Cesarean Section 74.2: Extraperitoneal Cesarean Section 74.4: Cesarean Section of Other Specified Type	
Hip replacement, Total and Partial	81.51: Total Hip Replacement 81.52 : Partial Hip Replacement	
Knee replacements	81.54 Total Knee Replacement	
Total Mastectomy **(counts to be based on women only)**	85.4 : Mastectomy	

Example using English Data and Metadata

Data Items for Inclusion in the Common Data Set - Data Transformation Table

Please provide the information requested in the far right hand column of Part 1 below. For data items that have CDS coding categories specified, please list the codes in your national data set that are grouped to give each CDS code.

Please refer, where advised in the tables, to Annex 1 (Type of Admission), Annex 2 (diagnostic shortlist) and Annex 3 (procedure shortlist).

Also, to help you complete this form, you may like to look at the example of a completed form provided at Annex 4.

Name of Country Completing the Table: England

(please type in the name of your country in the space provided above)

Data item	CDS definition	Guidance on information requested	Please provide information in this column
Gender	5 Male 6 Female	If some records in your national data are coded to gender categories other than 'male' or 'female' (e.g. 'unknown') and if you have a process for allocating "unknowns" to "males" or "females" then please use this. If you do not have such a process then please exclude these records. It would be helpful to get some idea of the size and percentage of the gender coded to categories other than male or female. Please give details in the 4th column.	*Around 25,000 discharges each year are coded to 'unspecified' or 'unknown' gender. For CDS data the following transformation is carried out:* • *discharge records that must logically be male or female (on the basis of diagnosis or procedure) are given the appropriate gender code* *of the remaining discharge records, 50% are assigned 'male' and 50% are assigned 'female'*
Age group	<1, 1-4, 5-9,10-14,15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85-89, 90-94, 95 and over.	Please state whether your data comply with this CDS requirement; if not, please give details. If age is unknown please exclude. Please give details of how you calculate age in your data set.	*England's CDS data comply with this requirement.* *Age is derived from the date of admission and date of birth.*

Example using English Data and Metadata

Data item	CDS definition	Guidance on information requested	Please provide information in this column
Type of admission	1 Planned	Please see Annex 1 for distribution of planned, not planned and "other" admissions. Those countries (UK and Belgium) with "other" categories please allocate as you think most appropriate to planned or not planned and record details in column 4. If countries do not agree with the distribution given in Annex 1, then please provide information in the 4th column. Please provide any further details on how you define "planned" and "not planned".	*Agree proposed transformation* Proposed transformation: 11: Elective – from waiting list 12: Elective –booked 13: Elective – planned The following "other" categories have been allocated under "planned" admissions - 81: Other - patient transferred from another healthcare provider (but excluding emergencies – see code 28) &Space: Not known (code 99 from 1996/97) Spaces – other maternity events (code 98 from 1996/97)

Example using English Data and Metadata

Data item	CDS definition	Guidance on information requested	Please provide information in this column
Type of Admission continued	2 Not Planned		Agree proposed transformation Proposed transformation: 21: Emergency – via A&E 22: Emergency – via GP 23: Emergency - via bed bureau 24: Emergency – via Consultant outpatient clinic 28: Emergency – other The definition of "planned/not planned" in England is as follows – **Planned (Elective)** – An admission is planned if the patient has been waiting for treatment i.e. admitted via the waiting list. Also included are those waiting for clinical reasons. Another example of planned admission is where radiotherapy treatment has been arranged for cancer sufferers. **Not Planned (Emergency) –** This is where a patient has been admitted to hospital immediately (other than where a woman is admitted purely because she is about to give birth. These records have their own special methods of admission and appear under the "other" category). Not planned covers patients admitted via A&E but can also include patients from outpatient or other clinics; if the consultant in charge decides that the case is serious that immediate inpatient treatment is necessary.

Example using English Data and Metadata

Data item	CDS definition	Guidance on information requested	Please provide information in this column
Primary Diagnosis/Main Diagnosis.	The primary diagnosis recorded should be the 'main condition', as defined in ICD–10, Vol 2, p 96. There should be one primary diagnosis per hospital discharge. Countries should group primary diagnosis data according to the diagnosis shortlist at Annex 2.	Please state which classification is used to record diagnosis in your country (ICD–10, ICD–9–CM, etc). Please state whether your can provide data grouped according to the categories defined in Annex 2. If not, please give details.	*England uses ICD–10. Diagnoses have been grouped according to the CDS shortlist.* *CDS data reflect the primary diagnosis recorded for the discharge episode in each hospital stay (in a small percentage of cases a different diagnosis will have been recorded in an earlier episode in the same spell—this information is lost in the CDS data)*

Data item	CDS definition	Guidance on information requested	Please provide information in this column
External Cause	Counts are only based on those cases which fall into the ICD chapter on Injury and Poisoning (ICD-10 codes S00 to T98 or ICD-9 codes 800 to 999). Countries should group external cause data according to the external cause shortlist at Annex 5.	Please state which classification is used to record diagnosis in your country (ICD–10, ICD–9–CM, etc). Please state whether your can provide data grouped according to the categories defined in Annex 5. If not, please give details.	*England uses ICD–10. Diagnoses have been grouped according to the external cause shortlist.*

Example using English Data and Metadata

Data item	CDS definition	Guidance on information requested	Please provide information in this column
Operative procedures	Counts to be based on all recorded procedures—there may be more than one procedure per hospital discharge. Countries that hold records other than hospital discharges on their national database (e.g. department discharges; consultant episodes), should base the count of procedures on all records, not just hospital discharge records. Countries should group procedure data according to the shortlist at Annex 3.	Please state whether your data comply with this CDS requirement; if not, please give details. Please state which classification is used to record procedure in your country (e.g. ICD–9–CM Part 3; Nordic Classification of Surgical Procedures). For those countries that do not use ICD-9-CM for coding procedures please detail the matching codes from the procedure coding system in your country. This information should be provided within table 1 of Annex 3.	*England uses OPCS–4.* *England's CDS data comply with the CDS requirement: counts of procedures are based on all procedures performed. (But see note in Annex 2 of Section B part 2 on calculating length of stay)*

Example using English Data and Metadata

Data item	CDS definition	Guidance on information requested	Please provide information in this column
Total inpatient discharges and deaths in hospital. (exclude day cases)	An inpatient is a patient who is formally admitted and stays for a minimum of one night. Patients admitted as inpatients but who do not remain overnight for some reason (e.g. death) should be recorded as inpatients. Patients admitted with the intention of discharge on the same day, but who subsequently stay in hospital over night, should also be recorded as inpatients.	Please state whether your data comply with this CDS requirement; if not, please give details	*Data comply with CDS requirement*
Total day case discharges	A day case is a patient who is formally admitted with the intention of discharging the patient on the same day, and where the patient is in fact discharged on the same day	Please state whether your data comply with this CDS requirement; if not, please give details	*Data comply with CDS requirement*
Total bed days	Calculated as sum of (discharge date minus admission date) for all deaths and discharges in each group; inpatients only contribute to bed days (day cases are excluded).	Please state whether your data comply with this CDS requirement. If you have used a different method to calculate total bed days please provide details.	*Data comply with CDS requirement : Total bed days calculated as discharge date minus admission date, summed for each group, inpatients only. (But see note in Annex 2 of Section B part 2 regarding underestimation of length of stay / bed days for procedure groups)*

Example using English Data and Metadata

Data item	CDS definition	Guidance on information requested	Please provide information in this column
Mean length of stay	Calculated as total bed days divided by total number of inpatients in each group. The calculation is based on both deaths and discharges.	Please state whether your data comply with this CDS requirement; if not, please give details	*Data comply with CDS requirement* *(But see note in Annex 2 of Section B Part 2 regarding underestimation of length of stay / bed days for procedure groups)*
Median length of stay	Median length of stay (discharge date minus admission date) for inpatient deaths and discharges, for each group. Median is calculated by ordering the length of stay in ascending order and selecting the middle value.	Please state whether your data comply with this CDS requirement; if not, please give details	*Data comply with CDS requirement* *(But see note in Annex 2 of Section B Part 2 re underestimation of length of. stay / bed days for procedure groups)*

External Cause Shortlist

The Expert Group recommends the following groups for reporting of external causes of hospital morbidity and mortality for those cases which have a primary diagnosis of injury, poisoning and certain other consequences of external causes (i.e. ICD-10 codes S00 to T98 or ICD-9 codes 800 to 999). Counts should be based on the first mentioned external cause. Where no external cause is mentioned, this should be coded as missing (see code table 7 in Section A).

Heading	**ICD-10 codes**	**ICD-9 codes**
Land transport accidents	V01-V89	E800-E829, E846-E848
Accidental falls	W00-W19	E880-E888
Accidental poisoning	X40-X49	E850-E869
Intentional self-harm	X60-X84	E950-E958
Assault	X85-Y09	E960-E968
Event of undetermined intent	Y10-Y34	E980-E988
Complications of medical and surgical care	Y40-Y84	E870-E879, E930-E949
Other external causes	remainder of V01-Y95	E830-E845, E890-E929, E959, E969, E970-E978, E989, E990-E999
External cause not known or not reported, i.e. missing data. Note: This group applies only to cases with a main diagnosis in ICD-10 S00 to T98 or ICD-9 800 to 999.	Cases that have a main diagnosis in ICD-10 S00 to T98 or ICD-9 800 to 999 but have not associated external cause should be coded as missing (see code table 7 in Section A).	

Hospital Data Project

Section B
Request for Metadata

Part 2

Coverage Issues for the Common Data Set

Purpose of this Document

The purpose of this document is to provide guidance on which patients are to be included in the Common Data Set and which patients are to be excluded from the Common Data Set; i.e., the coverage of the Common Data Set. The document is also designed to collect descriptive information from each country on whether it conforms to the Common Data Set coverage definitions and, if not, the extent to which it diverges from these definitions.

Contents of this Document

Coverage Issues Table

In the Coverage Issues Table below, column one details four issues (a) coverage, (b) nature of individual records, (c) patients' place of residence and (d) year for which data is provided. Column two provides the definitions of these issues for the Common Data Set. Column three provides guidance on these definitions and requests information for clarification purposes from countries submitting data to the Common Data Set. This information is to be inserted into column four by each country.

Annexes

Annex 1 – Coverage of the Common Data Set

This annex contains detailed information on which patients are included and which patients are excluded from the Common Data Set as agreed in Lisbon on May 16 and 17 2002. It also contains definitions of key terms under discussion.

Annex 2 – Example of Completed Coverage Issues Table

The purpose of this annex is to provide you with an example of how you should complete and return you Coverage Issues Table

Actions for Participant Countries

Complete the Coverage Issues Table (if you have not already done so) by filling in details in column four and return it to Val Tyler (METyler58@aol.com) and copied to Ciara O'Shea (Ciara_O'Shea@health.irlgov.ie).

Some MS have already provided information on the coverage issues within the previously distributed Proforma tables 1 and 2. We are not asking these countries to complete the forms again, but we may need to come back to them for clarification. However as we have made some changes to the pilot data set, it would be helpful if these countries could look at parts 1 and 2 of Section B to ensure they are content with their previous contribution. If not then please provide updated information.

Participant Country Common Data Set Coverage Issues

Please provide the information requested in the far right hand column of the table below.

Please see Annex 1, which is the agreed note on Coverage as discussed at the 16/17 May meeting in Lisbon. Also, to help you complete this form, you may like to look at the example of a completed form provided at Annex 2.

Name of Country Completing the Table: _____

(please type in the name of your country in the space provided above)

	CDS definition	**Guidance on information requested**	**Please provide information in this column**
Coverage	CDS data should **include** and **exclude** the following: **Include:** • In-patient curative care • Day cases curative care • In-patient rehabilitative care • Day cases rehabilitative care; provided in all hospitals and, where applicable, other organisations. • Psychiatric, maternity and geriatric patients should be included. • Palliative care provided in hospitals should be included. **Exclude:** • Records for healthy liveborn infants . • Outpatients and, • Palliative care provided in special palliative care centres.	Please give details of the data you are providing to the CDS, e.g. do your data cover: • both inpatient and day care? • all hospitals in your country? • activity in any organisations other than hospitals?	Have you been able to meet the requirements? Please "tick" **Yes** or **No** below **Yes** **No** If, **No**, please specify differences and, if possible, the number of records involved.

Nature of individual record on which RAD is based	The CDS is based on hospital discharge records including deaths in hospital.	Please state whether your data comply with this CDS requirement. For countries that hold data on a different basis (e.g. department discharges; consultant episodes), please explain how you have provided data in a way that meets this requirement	
Patients' place of residence	National level data only for the pilot exercise.	Please state, if possible, the proportion of residents of other countries treated in your hospitals.	
Year for which data is provided	The pilot data set requests that data for the calendar year 1999 is provided	Please state whether your data comply with this CDS requirement. If not, please specify which year is being provided.	

Coverage of the Common Data Set

The following guidelines on coverage reflect what was agreed by representatives of participant countries at the Full Group meeting of the Hospital Data Project on 16–17 May 2002.

Common Data Set (CDS) coverage should be defined by the following OECD System of Health Accounts function categories:

HC.1.1 In-patient curative care
HC.1.2 Day cases curative care
HC.2.1 In-patient rehabilitative care
HC.2.2 Day cases rehabilitative care

Countries are asked to provide data with discharges for inpatients and day cases separately identifiable. There is no requirement to separately identify discharges for curative and rehabilitative care.

The following points further clarify specific inclusions and exclusions (refer also to the definitions of key terms below):

- Outpatient care should be excluded. The key distinction between outpatients and inpatients / day cases is an administrative one—outpatients are not formally admitted to the institution, whereas inpatients and day cases are formally admitted.
- Palliative care provided in hospitals should be included, but palliative care provided in special palliative care centres should be excluded.
- Discharges for healthy babies should be excluded.
- Psychiatric, maternity and geriatric patients should be included.
- The CDS should contain data for all hospitals, including mental health and substance abuse and other specialty hospitals. It should also contain data for other providers of inpatient and day case curative and rehabilitative care that is of a similar nature to that provided in hospitals. As an example, day surgery centres and rehabilitation centres should be included where data for these providers are included in the national hospital data collection for a country. Palliative care centres should be excluded.

Countries will be asked to provide metadata (information about their data) outlining what providers, other than hospitals, are included in their CDS data set, and also any categories of hospital for which they cannot provide data. Countries will also be asked to state whether the coverage of their CDS data differs in any way from the guidelines outlined above (e.g. if data on day cases or maternity patients cannot be provided).

Definitions of key terms

The following definitions of key terms are based closely on definitions given in the OECD's System of Health Accounts (SHA page references are given).

Curative care

An episode of curative care is one in which the principal medical intent is to relieve symptoms of illness or injury, to reduce the severity of an illness or injury or to protect against exacerbation and/or complication of an illness and/or injury which could threaten life or normal function. Inclusions: obstetric services; cure of illness or provision of definitive treatment of injury; the performance of surgery; diagnostic or therapeutic procedures. Palliative care is excluded. (p. 115)

Rehabilitative care

An episode of rehabilitative care is one in which the emphasis lies on improving the functional levels of the persons served and where the functional limitations are either due to a recent event of illness or injury or of a recurrent nature (regression or progression). Included are services delivered to persons where the onset of disease or impairment to be treated occurred further in the past or has not been subject to prior rehabilitation services. Rehabilitative care is generally more intensive than traditional nursing facility care and less intensive than acute (curative) care. (p. 117)

Inpatient care

An inpatient is a patient who is formally admitted to an institution for treatment and/or care and stays for a minimum of one night. Inpatient care includes accommodation provided in combination with medical treatment when the latter is the predominant activity provided during the stay as an in-patient. (p. 112)

For CDS data, patients who are admitted as inpatients but who do not in fact remain overnight for some reason (e.g. death) should be recorded as inpatients. Patients admitted with the intention of discharge on the same day, but who subsequently stay in hospital over night, should also be recorded as inpatients.

Day care (also referred to as Day Case)

Day care comprises medical and paramedical services delivered to patients that are formally admitted for diagnosis, treatment or other types of health care with the intention of discharging the patient on the same day, and where the patient is in fact discharged on the same day. (p. 113)

Outpatient care

An outpatient is not formally admitted to the facility and does not stay overnight. An outpatient is a person who goes to a health care facility for a consultation/treatment, and who leaves the facility within several hours of the start of the consultation without being 'admitted' to the facility as a patient. (p. 113)

Hospital

A hospital is a licensed establishment primarily engaged in providing medical, diagnostic and treatment services that include physician, nursing, and other health services to in-patients, and the specialised accommodation services required by in-patients. (p. 137)

General hospitals

Hospitals providing diagnostic and medical treatment (both surgical and non-surgical) to inpatients with a wide variety of medical conditions. These hospitals may provide other services, such as outpatient services, anatomical pathology services, diagnostic X-ray

services, clinical laboratory services, operating room services for a variety of procedures and pharmacy services. General hospitals include general acute care hospitals, community, county and regional hospitals (other than specialty hospitals), hospitals of private non-profit-organisations (e.g. Red Cross), teaching hospitals, university hospitals, army, veterans and police hospitals and prison hospitals. (p. 137)

Mental and substance abuse hospitals

Hospitals primarily providing diagnostic and medical treatment, and monitoring services, to inpatients with mental illness or substance abuse disorders. The treatment often requires extended stay in an inpatient setting. These hospitals usually provide other services, such as outpatient care, clinical laboratory tests, diagnostic X-rays, and electroencephalography services. (p. 138)

Specialty (other than mental health and substance abuse) hospitals

Hospitals primarily providing diagnostic and medical treatment to inpatients with a specific type of disease or medical condition (other than mental illness or substance abuse disorders). This includes hospitals providing long-term care for the chronically ill and hospitals providing rehabilitation and related services to physically challenged or disabled people. These hospitals may provide other services, such as outpatient services, diagnostic X-ray services, clinical laboratory services, educational and vocational services, and psychological and social work services. (p. 138)

Example using English Data and Metadata

Participant Country Common Data Set Coverage Issues

Please provide the information requested in the far right hand column of Part 2 below.
Please see Annex 1, which is the agreed note on Coverage as discussed at the 16/17 May meeting in Lisbon.
Annex 2 contains information for England in the 4th column.

Name of Country Completing the table: ENGLAND

(please type in the name of your country in the space provided above)

	CDS definition	Guidance on information requested	Please provide information in this column
Coverage	CDS data should **include** and **exclude** the following: **Include:** • In-patient curative care • Day cases curative care • In-patient rehabilitative care • Day cases rehabilitative care; provided in all hospitals and, where applicable, other organisations. • Psychiatric, maternity and geriatric patients should be included. • Palliative care provided in hospitals should be included. **Exclude:** • Records for healthy liveborn infants . • Outpatients and, • Palliative care provided in special palliative care centres.	Please give details of the data you are providing to the CDS, e.g. do your data cover: • both inpatient and day care? • all hospitals in your country? • activity in any organisations other than hospitals?	Have you been able to meet the requirements? Please "tick" **Yes** or **No** below ~~**Yes**~~ **No** √ If, **No**, please specify differences and, if possible, the number of records involved. *CDS data include inpatient and day care provided in all NHS trusts.* *Psychiatric, maternity and geriatric patients are included. Records for healthy babies are excluded.* *Data for private hospitals cannot be provided—private hospitals account for approximately xxx discharges per year.*

Example using English Data and Metadata

Participant Country Common Data Set Coverage Issues (continued)

Nature of individual record on which Raw Aggregate Data is based	The CDS is based on hospital discharge records including deaths in hospital.	Please state whether your data comply with this CDS requirement. For countries that hold data on a different basis (e.g. department discharges; consultant episodes), please explain how you have provided data in a way that meets this requirement	*England collects records for 'consultant episodes', and there may be more than one episode per hospital stay. Therefore, in our CDS data for diagnosis and external cause only 'discharge episodes' are included (i.e. last episode in a spell). It is still possible to calculate length of hospital stay, as date of original admission is recorded on each successive episode in the stay. CDS data on procedures are based on all episodes, to capture all procedures performed (whether in the discharge episode or a previous one). This will lead to an 'under-estimation' of bed days / length of stay for certain procedures, because it is not possible to take account of` time the patient spends in hospital in a subsequent episode (e.g. a rehabilitation episode).*
Patients' place or residence	National level data only for the pilot exercise.	Please state, if possible, the proportion of residents of other countries treated in your hospitals.	*The estimated proportion is xx*
Year for which data is provided	The pilot data set requests that data for the calendar year 1999 is provided	Please state whether your data comply with this CDS requirement. If not please specify which year is being provided.	*Yes, England is providing data for the calendar year 1999*

Annex 11

EUHDP Instruction Manual

Instruction manual for using the EUHDP data display system is not included here but is available in a separate document.

Annex 12

Organisation

The table below summarises dates of the meetings held in respect of the HDP and details of the purpose of the Lead and Full Group Meetings are detailed below.

Management Meetings	Lead/Core Group Meetings	Full Group Meetings	Expert Group Meetings
29 March 2001			
	3 & 4 May 2001		
18 July 2001			
		30 & 31 August 2001	
			14 January 2002
	24 & 25 January 2002		
			26 February 2002
			4 April 2002
3 May 2002			
		16 & 17 May 2002	
1 July 2002			
30 October 2001			
	7 & 8 November 2002		
30 January 2003			
		27 & 28 March 2003	

1. 3rd/4th May 2001 (Dublin) – Core Group meeting

The purpose of this "kick-off" meeting was to provide context and reason for the Hospital Data Project; to agree the role of the Core Group; discuss the proposed methodology; identify key issues and next steps. It was agreed that a structured form (inventory) to collect data on hospital activity would be produced and sent to countries for completion. Also agreed was that the HDP would look at work carried out in other related EU projects and summaries produced of these highlighting areas of interest to the HDP. By so doing duplication could be avoided and note taken of relevant work. Agreement was also reached that it was necessary to look to an outside expert to look at the problem of constructing a Diagnostic Short List. Agreement was reached that an approach should be made to Professor Smedby of Uppsala University, a recognised expert in this field, to carry out this work.

2. 30th/31st August 2001 (Dublin) – Full Group Meeting

10 EU Member Countries and Iceland attended the first Full Group meeting. 2 Countries were unable to attend. Representatives from Germany, Italy, and Spain were still being sought. Representatives from WHO, HOPE and FNORS /France also attended the meeting. The meeting discussed the purpose of the HDP - the background etc. and the proposed methodology. Papers were tabled on a number of topics including the methodology; the inventory; summaries of other related EU project and a paper setting out the problems of setting up a Diagnostic Short List. A paper on the "European Health Care Data "(HOPE) and a draft report on Health Indicators in the European Regions :ISARE Project were presented. The meeting agreed that further enhancements to the methodology should be carried out and that work should continue on completing the inventory containing information provided by each country on their hospital activity data. A special subgroup of experts on Diagnosis under the chairmanship of Prof. Smedby was also recommended. Agreement was also reached that further work was required in areas such as coverage/statistical units/geography etc. and on definitions the data items. This work would be considered and papers presented at the following Core Group meeting. It was also agreed that related projects outside Europe would be looked at. Contact with EU related projects would continue with papers from the HDP being circulated to these other projects.

3. 24th/25th January 2002 (Dublin) – 2nd Core Group Meeting

The second meeting of the Core Group considered a number of topics. These had been proposed, following discussion, at the previous Full Group Meeting. Papers were discussed on the methodology (updated) together with a flow chart showing the various stages of the project linked to other related projects. An updated version of the inventory was also considered. A paper looking at health indicators was tabled. This together with the inventory would help identify areas of importance in the construction of the common data set. Agreement was reached that further work was required on coverage (both patients and hospitals) and also on the other possible data items and their definitions. The Irish Public Health Information System (PHIS) was demonstrated and agreement was reached that test data from 3 countries would be collected and tested on the system.

4. 16th/17th May 2002 (Lisbon) - 2nd Full Group Meeting.

All EU Member Countries and Iceland attended the second Full Group Meeting. Representatives from the EU Commission and Prof. Smedby, Uppsala University, were also present. Papers on data items to be included in the common data set were discussed and agreement reached on the data and definitions. A presentation of the Irish Public Health Information System was also made to the full group. Prof. Smedby introduced a paper on the work carried out by the Expert Group on Diagnosis containing a draft diagnostic short list. Presentations were also made on a proposed sentinel procedure list and on coverage issues (coverage of both type of patient and hospital).

5. 7th/8th November 2002 (Vienna) – 3rd Core Group Meeting

A demonstration was given of the Irish Public Health Information System (PHIS), which had been adapted for HDP data. Data from a number of countries was demonstrated and Core Countries were able to gain "hands-on" experience of the software. Countries found the software to be very user friendly. Papers were considered showing preliminary analyses and data validation. A list of possible data validation checks, that countries could use themselves for checking their data, was circulated. It was agreed that a structured Feedback form would be sent to countries, when their data was returned to them on CD-ROM for checking, to obtain comments on the results of their validation checks and on the use of the software. Discussion also took place on the future of the HDP and also the broad structure of the final report was considered.

6. 27th/28th March 2003 (London) – 3rd Full Group Meeting

The final meeting of the HDP was held to consider the draft final report to discuss the data and metadata and to have an update on the development of the software. Most EU member countries were present (Sweden, France and Spain were unable to attend) together with Prof. Smedby and representatives from the WHO and the EU. A demonstration was given of some of some of the early results. A presentation was also given by Prof. Smedby of the work carried out by the Expert Group under his chairmanship on the construction of the Diagnostic Shortlist. Discussion took place on the Procedure and External Cause short lists and agreement was reached that further work was required on these. Countries were asked to send in metadata information still outstanding and to resubmit their data where necessary by the end of April. Also considered was the future of the project and whether the final report should recommend continuation of the work and to agree the way forward. A list of the most important areas for future development was agreed. All countries present at the meeting agreed that the project had been a success and that the work should continue. Most countries agreed in principle in being involved in any future work of the project.

7. Expert Group Meetings on Diagnosis

Three meetings of the Expert Group on Diagnosis were held in January, February and April 2002, where issues were discussed on compiling a Diagnostic Short List for the HDP. Some consideration was also given to the inclusion of external causes and also on the structure of a procedure sentinel list. More details of the deliberations of this Group are given within the report and at Annex 8.

8. Meetings of the Management Team – held during 2001, 2002 and 2003.

In addition to the above meeting there were a number of Management Team meetings held during the period of the project. These meetings were held to discuss progress; to consider the way forward; to set timetables and to arrange papers to be prepared for consideration by both the Core and Full Group meetings.

Annex 13
Validation Exercises and Feedback Form

This annex contains two documents circulated to project participants as part of the validation exercise for test data submitted to the project. The first documents lists a number of suggested data validation exercises for project participants to carry out on their data. The second document asks for feedback on the data, software and documentation in relation to the project

1. Data Validation Checks

The purpose of this document is to suggest to you a number of possible validation checks that should be carried out on the data in the EUHDP system.

Table 1 refers to validations exercises that look at the internal consistency of data supplied by a country.

Table 2 refers to validation exercises which compare data between countries.

The former exercises are designed to check for data errors that may be due to programming errors etc. and may require changes being made to the data. The latter exercises are designed to check for errors that may be a result of varying coverage between countries or other issues that may require a meta data resolution.

You are asked to complete all data checks if possible and also to use the feedback form (document number HDP/02/21) to inform the management team about any errors or changes you wish to make to your data or meta data.

The list provided is not exhaustive and if you wish to carry out any other validation checks, please do so. You can use the feedback form to inform the Project Management Team about these other validation checks and any issues that arose.

Data Validation Checks

Table 1. Country Specific

1	Check data on system against data sent in .csv file.
2	Total Records (in-patients, day-cases, all cases) by gender. Do male and female categories add up to totals? This can be done on all three files.
3	Total Records (in-patients, day-cases, all cases) by age group. Do age group categories add up to totals? This can be done on all three files.
4	Total Records (in-patients, day-cases, all cases) by type of admission. Do "planned" and "not planned" categories add up to totals? This can be done on all three files.
5	Total Records (in-patients, day-cases, all cases) by diagnosis. Do diagnosis (chapters and sub-chapter) categories add up to "All Causes"?
6	Gender specific checks. (a) Diagnoses Cancer of breast, uterus, ovary, prostate, chapter 1500 (pregnancy, childbirth), 1405, 1406, 1407, 1408, 1409 (b) Procedures D&C, Cesarean Section, Mastectomy, Prostatectomy.
7	Age specific checks. (a) Diagnoses Chapter 1600 (perinatal conditions), Alzheimer's, cataracts, chapter 0900 (circulatory system), alcoholic liver disease (b) Procedures All procedures in HDP shortlist
8	Population Files. Check age and gender categories with totals
9	Check Procedure Counts against another source of data.
10.	Check day-case against type of procedure e.g. CABG, Hip Replacement

Data Validation Checks

Table 2. Inter-Country Comparison

11	Percentage of all records which are day-cases.
12	All Admission Rates.
13	Population Rates and ALOS by diagnosis categories.
14	Population Rates and ALOS by Procedure categories.
15	Percentage distribution of cases amongst diagnoses chapter headings.

Hospital Data Project

Feedback Form

Countries are asked to carry out the validation checks indicated in Tables 1 and 2 of the 'Data Validation Checks' document (HDP/02/17) and to record the results on the attached feedback form. In Section 3 of the Instructions Manual for using the EUHDP Data Display System (HDP/02/19), a step-by-step example is given on how to carry out one of these validation checks. The same functions are required for all the country specific validation checks.

Countries are also asked to carry out whatever additional checks they feel may be required to ascertain the validity and/or identify problems with their data. In carrying out this exercise, issues with data from other countries may be discovered, and this should also be indicated on the feedback form.

The first part of the feedback form is designed to list data issues and problems in the left-hand column and to suggest solutions in the right hand column. Solutions may require the resubmission of data where data are missing or have been wrongly specified; in other cases, the solution may be the revision or improvement of meta data descriptions of data. It is very important that countries are satisfied with the accuracy of their data as it appears on the system and that it conforms as far as possible with the project specifications for coverage, variable definitions, etc. In checking the accuracy of their data countries should refer back to the file specifications detailed in HDP/02/13 and also to their own meta data documents which they completed and returned to the Project Management Team.

As a result of using the EUHDP software to look at their and other countries data, participants may have recommendations for changes and improvements to the software. The second part of the feedback form provides the opportunity to make these suggestions.

A third page, also with columns for problems and solutions, is provided for any and all general comments which participants may have on any aspect of the project.

Summary

Complete Section 1 of feedback form with results of validation checks (see document HDP/02/17) and other checks on data indicating problems and solutions. Problems encountered with data from other countries should also be recorded in this section.

Complete Section 2 of feedback with problems encountered in using the software and proposals for enhancements and improvements.

Complete Section 3 with any and all general comments on the Hospital Data Project (HDP).

Thank you for your co-operation, and you are reminded to return completed feedback forms by 7th February 2003 **at the latest to** Val Tyler **(METyler58@aol.com with a copy to Ciara_O'Shea@health.irlgov.ie)**

Section 1
Feedback on Data

Name of Country _____
Please insert the name of the country to which the comments refer

Data Issues and Problems (e.g., errors in data) ***Please identify issues/problems in the box below***	*Suggested Solutions* (e.g., submit new data file, ensure comment is included in meta data) ***Please identify solutions in the box below***
All data validation checks identified in HDP/02/17 (i.e., validation exercises listed above in this annex) have been carried out Yes No Please identify any errors or issues that arose from these data checks.	

Please insert additional pages if necessary

Section 1 continued
Feedback on Data

Name of Country _____
Please insert the name of the country to which the comments refer

Have additional data validation checks have been carried out? Yes No If yes, please elaborate on these additional data validation checks and any errors/problems that arose below.	*Suggested Solutions* (e.g., submit new data file, ensure comment is included in meta data) ***Please identify solutions in the box below***

Please insert additional pages if necessary

Section 2
Feedback on Software

Name of Country _____
Please insert the name of the country to which the comments refer

Software Issues and Problems ***Please identify issues/problems in the box below***	*Suggested Solutions* ***Please identify solutions in the box below***

Please insert additional pages if necessary

Section 3

General Comments

Name of Country _____
Please insert the name of the country making the comment.

Please insert any general problems or comments you have below. ***(****e.g., problems with undertaking data transformation exercises for diagnosis data, procedure data, external cause data**, language problems, problems with the instruction manuals)*	***Please identify solutions in the box below***

Please insert additional pages if necessary

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