Health Accounts Experts

INTERNATIONAL COMPARISONS OF OUTPUT AND PRICES IN HEALTH CARE: INTERIM REPORT

7TH MEETING OF HEALTH ACCOUNTS EXPERTS AND CORRESPONDENTS FOR HEALTH EXPENDITURE DATA

To be held at the Château de la Muette, Paris
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NOTE BY THE SECRETARIAT

1. Data on comparative price levels and volume comparisons in health care are essential to complement health accounts for the purpose of international comparisons of activities, output and productivity. Different data sets are needed to track changes over time, and to explain differences across countries at any point in time.

2. This paper reports on the current status of work by the Secretariat on a methodology for international comparisons of price levels and volumes (quantities) in health care to complement the framework of the OECD manual "A System of Health Accounts". A proposal is made for a project to establish an indicator system on health care volume and price measurement for international comparisons. Alternative strategies are discussed to aggregate these measures to composite indicators, with a focus on health-specific purchasing power parities (H-PPPs) and its subcomponents.

3. The participating experts are invited to:
   - COMMENT on the conceptual framework presented in this paper regarding policy relevance, and soundness of statistical methods;
   - COMMENT on data availability and feasibility from national data sources;
   - EXPRESS their interest to participate in a project of piloting health-specific international price levels with the goal to improve data availability and test comparability and interpretability of data estimated following the proposed approach.
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INTRODUCTION

4. In the absence of a common currency denomination, specific to health care services, there is much uncertainty about how to interpret differences in health care spending between countries. To which extent are these due to real differences in the activity level or volume of services – with or without adjustment for differences in quality of care and outcomes – or to differences in price levels? These questions need to be addressed at various levels of aggregation.

5. Chapter 7 in the OECD manual *A System of Health Accounts* (SHA) discusses methodological issues of price and volume measurement in health care and sketches a proposed framework to improve price indices for medical services in national health accounts in order to make them better suitable for health policy analysis. It refers briefly to the need for improving comparisons between countries and to the health component in purchasing power parities but does not further elaborate on the technical details of this complex task. This paper outlines a strategy to do so.

6. Progress has been made over the last ten years in data quality and international availability of indicators at the semi-aggregate level of health care services which potentially could be used to derive indicators for tracking national differences in aggregate health care price levels. The OECD Secretariat has currently the most comprehensive data set for international comparisons at hand, which already includes data that can be tested for their potential to analyse differences in volumes of services between countries. Among these are: OECD Health Data, SHA-based health accounts, and the OECD Health Care Quality Indicator Project.

Scope and purpose of the paper

7. This paper is the first step in a project to refine data and a methodological framework for international volume and price comparisons in an iterative way. The paper mainly sets out the methodological framework for comparisons of health care volumes and prices between countries at various levels of aggregation. Although a first assessment of data availability is presented, more work will be required to complement the list of indicators needed for comparisons across countries, which then will have to stand the test of estimations, and further assessments of their quality and comparability. Much improvement of the elementary indicators which feed into the measurement of comparative price levels will be needed before these will result in credible measures for analysis and health policy.
Box 1. A note on basic terminology: Price, volume, quantity and value measures

The basis of defining comparative price levels is the identity:

\[ \text{Expenditure} = \text{price} \times \text{volume} \]

*A number of other terms frequently used in this context are:*

- **Expenditure**: a synonym for expenditure, (System of National Accounts)
- **Value**: a synonym for expenditure, (System of National Accounts)
- **(PPP) Purchasing power parity**: A relative price which measures the number of units of country B’s currency that are needed in country B to purchase the same quantity of an individual good or service as 1 unit of country A’s currency will purchase in country A.
- **Output**: often used as synonym for volume of output of a well-defined bundle of goods or services;
- **Quantity**: quantities are defined as units for homogenous, individual goods or services (volumes, in contrast, are weighted averages of quantities; in health research, both terms are sometimes used interchangeably); quantities are additive only for a single homogeneous product.
- **Real expenditure**: in international comparisons expenditure “that have been converted to a common currency and value at a uniform price level using PPPs” (either PPPs for GDP or health-specific PPPs). “Expenditures so converted are valued at international prices and reflect only volume differences between countries”.
- **Volume**: (expenditure) weighted average of (all) quantities of individual products (individual output).

Source: adapted from: SNA93, Chapter 16 on “Price and volume measures”; OECD SNA93 glossary; and the Glossary of the draft Eurostat-OECD PPP manual.

The project of volume comparisons for health, and of H-PPPs: a Reader’s guide

8. This paper starts with an overview on potential uses of indicators for the international comparison of real health expenditure (in the sense of volume comparisons), and on comparative price levels of OECD countries. These comparisons can be made at various levels of aggregation. The need for health-specific PPPs is illustrated and the potential and limitations of derived indicators, such as for productivity measurement is discussed.

9. The next chapter on a basic framework is the most important of the present paper. It provides the toolkit for price and volume measurement for comparisons between countries. This chapter examines the similarities and differences between existing PPP-type estimation techniques, such as those used in the Eurostat-OECD PPPs estimations, and the proposed ways of calculating indicators for international comparisons for price and volume measures of health care services and goods. This chapter also presents the classification of health expenditure categories which will define the various levels of aggregation for comparisons, based on the functional component of the International Classification for Health Accounts (ICHA-HC), thus defining the goal set of composite indicators of the project.

10. The most difficult task of the project is the selection of individual indicators for the international comparison of volumes of health care services. This is outlined in Chapter 3 which discusses data availability and other data issues by expenditure category. An overview of OECD data sources that could be used for constructing H-PPP and component estimates is given. These include OECD Health Data 2005, new data-bases on SHA-based health accounts, on long-term care services, and from the OECD health care quality indicators project.

11. This is followed by Chapter 4 on the question to which extent quality differences can and should be factored in when estimating price and volume measures. It is suggested to keep both measurements separate for the moment, *i.e.* not to attempt to estimate quality-adjusted price and volume measures for the time being. Ways are briefly explored on how both sets of measure could be brought together for analytical purposes. The final chapter summarises conclusions and recommendations for the overall design of the project, the resources needed, and on next steps.
CHAPTER 1. INTERNATIONAL COMPARISONS OF REAL HEALTH EXPENDITURE,
PRICES AND VOLUME MEASURES: FIELDS OF APPLICATIONS

12. Price and volume measures for international comparisons on health care are of interest at
different levels of aggregation. Because estimation methods become more and more complex during
aggregation, and less transparent for the potential users, it is essential to aim at testing and publishing
indicators at each level of aggregation together with the original input data.

Direct volume comparison of service consumption

13. Health expenditure on a basic level of aggregation from SHA-based health accounts, and sets of
corresponding output indicators (numbers of treatment episodes) are the basic building blocks of composite
measures for comparing price levels between countries. Making volume (output) and activity data (e.g.,
number of doctors’ consultations) “fit together” on this lowest aggregation level (which we will call “basic
headings”, in borrowing the corresponding term from the Eurostat-OECD PPP project) is an important
objective in itself. It is at this level that the basic data quality requirements have to be met, which will be
outlined in the next chapter. Once the issues of data quality and availability have been addressed at this
level, meaningful comparisons will be possible for functionally defined health expenditure that are derived
from the two-digit level of the ICHA-HC.

14. These comparisons will provide alternative ways of looking at comparative activity levels, which
are frequently used in international comparisons (e.g., in OECD, 2003b, Health at a Glance; the health care
resource profiles proposed, by Anders and Willis, 2000, or comparative tables presented in the literature:
Anderson et al., 2005).

Indirect comparisons of relative price levels at basic heading level

15. Volume relatives - that is the ratio of the volumes of products in one country to the volume of the
same product in other countries - can be used for indirect comparisons of relative price-levels at the same
levels of aggregation.

16. In this simplest form of price comparisons, these price relatives show the ratio of the prices in
national currencies of the same bundle of good or service in different countries. If divided by exchange
rates, they will provide an indicator which is called "comparative price levels” in the Eurostat-OECD PPP.
This indicator provides a measure of the differences in price levels between countries by indicating for a
given product groups the number of units of a common currency needed to buy the same volume of the
product group or aggregate in each country (Eurostat-OECD, 2005).

The need for health-specific purchasing power parities

17. International comparisons of per capita health expenditure have to be made in a common
currency unit. For this purpose, nominal expenditure in national currency are usually converted to USD in
purchasing power parities for gross domestic product. Purchasing power parities (PPP) are rates of
currency conversion estimated to account for price differences between countries.

18. Health expenditure per capita converted in USD PPPs are in fact among the most frequently
quoted indicators for international comparisons, and are usually presented in the form of a country ranking.
This is done for total expenditure on health and for its sub-components (e.g., OECD, Health at a Glance).
For international comparisons, this method of PPP conversion is preferred over the use of exchange rates,
because exchange rates do not directly measure relative price levels in countries. In addition, exchange
rates do not move with changes in relative prices over time, therefore comparisons are not consistent over time.

19. Another measure would be per capita expenditure converted by using sector specific PPPs. Conceptually, this would lead to estimates that by their definition were true measures for the relative volume of health services between countries. It can be expected that, if measured properly, these estimates, and any country ranking based on them might deviate in characteristic ways from indicators based on conversion by using economy-wide PPPs. A main reason is that only a small fraction of health services enter international trade, as is the case for other service industries. As a result, differences in price levels in service industries have been found to be bigger compared to economy-wide price levels. This is in particular relevant when countries are compared that differ widely in their income level (Tandon, 2002, p.3, and Balassa, 1964).

20. A broad literature now exists on the determinants of per-capita spending on health in international comparison, where expenditures are usually expressed in PPP for GDP. It can be expected that the results from many of these studies will change substantially if health expenditure were expressed in H-PPP. It has long been recognised that analysis based on these indicators is not robust against the choice of conversion factor (see Gerdtham and Jonsson, 1991). The choice of conversion factors to account for price differentials was also at the core of recent debate on the validity of conclusions from binary comparisons of health care systems (see Feachem et al., 2002, comparing the U.K NHS with Kaiser Permanente, California).

Analysis based on H-PPPs and its components

21. The ultimate goal of investing in the project outlined in the paper is to substantially improve volume measures and comparative prices for health care for use in the analysis of healthcare performance. It is, however, important to keep in mind that the indicators derived from this project in themselves are not performance measures. Differences in the price level, e.g., can be due to differences in factor input prices. It is with secondary analysis that volume and price measures can be brought to life as performance measures. The study of determinants for differences in price levels between countries would in fact been one of the most important applications of the indicators to be estimated under this project. Furthermore, these would be essential building blocks for productivity comparisons if the project would be extended to collect indicators on real inputs to the production of health care services.

Limitations of price and volume measures

22. The Eurostat-OECD PPPs publications distinguish between recommended uses; uses with limitations; and not recommended uses of PPPs and its derived indicators (OECD, 2005, 2002 benchmark estimate, p.16). Some of these limitations and “health warnings” for the resulting numbers should also be kept in mind when using any refined H-PPPs and its component measures.

- Among the recommended uses are: comparing total volumes; grouping countries by expenditure per capita; estimating (total) (labour) productivity;

- “Uses with limitations”: estimating changes in time of the above indicators (comparability over time poses additional data challenges, requiring the stability of the indicators selected, their availability for aggregation, etc.)

- “Not recommended uses”: this includes establishing strict rankings of countries (e.g., for expenditure per capita);
23. The Eurostat-OECD publications also warn that the interpretation of component measures for disaggregated price comparisons have to be done with caution, because these are more volatile and error-prone than comparisons at the aggregate level. The project of H-PPPs hopefully will provide more robust estimates for use at the disaggregated level. In fact this can be considered their main or primary purpose, with the more aggregate measure of H-PPPs for total expenditure being a subordinate goal, not the primary one.

24. In addition, as averages across regions and population groups these measures do not reveal any information about the distribution of health care consumption, which is critical for establishing links to outcomes, such as population health gains.

CHAPTER 2. A BASIC FRAMEWORK FOR PRICE AND OUTPUT MEASUREMENT FOR INTERNATIONAL COMPARISONS

25. This chapter presents a proposal for statistical concepts and methodology for price and volume indicators for health care. It presents a toolbox of working definitions from core concepts, which experts in purchasing power parity and health economists have designed for price and volume measurement. There has been much progress in methodology that has helped to clarify what is measured in volume comparisons (such as output versus activities), and how to define transaction prices in health care.

26. However, there are still fundamental differences in the approaches currently used, or proposed for making progress in the health field. Among the main methodological decisions to be made are:

- The structure of a list of “basic headings” for comparisons;
- The measurement of unit prices versus measurement of volumes (quantities) of services and the definition of units of measurement;
- The extend to which differences in quality in health care should explicitly be accounted for;
- Strategies for aggregating indices and composite measures.

27. This chapter first introduces core concepts and terms for international comparisons before presenting the basic structure of expenditure headings proposed for the purpose of this project. It next deals with basic data requirement concepts and finally discusses the choices available for aggregation across expenditure levels and countries.

The concept of volumes of health care services: activities, outputs, and outcome

28. It is important to distinguish these concepts (Dawson et al., 2004, Cutler/Bernd, 2001).

29. Activities are surgical and other medical procedures, consultations with a specialist; lab tests. In short, many of the items on fee-for-service lists fall under this concept.

30. There is now broad consensus that the most appropriate concept for defining health care outputs is episodes of treatment (often requiring a bundle of activities). Examples are treatment of acute illness or
disease, or of chronic disease, such as diabetes, cancer, heart disease. The definition of health output for national price indices in health care in the Eurostat handbook of price and volume measurements states:

| Health output is the quantity of health care received by patients, adjusted to allow for the qualities of service provided, for each type of health care. The quantities should be weighted together using data on the costs or prices of the health care provided. The quantity of health care received by patients should be measured in terms of complete treatments (Eurostat, 2001, p.117). |

31. The term of **outcomes** refers to a multi-dimensional concept of (positively or negatively expressed) characteristics of output, such as health changes, “responsiveness” of services to peoples non-health expectations (e.g., no waiting time, other convenience of access, quality of facilities, and amenities in hospitals or nursing homes). There are several possibilities for valuation of changes in health states measured, such as Quality Adjusted Life Years (QALYs). For non-health related outcomes such as reduced waiting times and patient satisfaction, estimates might be derived from discrete choice experiments (see chapter on accounting for difference in quality for more detail).

| The term of **volumes**, as used in this paper, ideally refers to volumes of outputs, where outputs are defined as above. |

**The concept of unit prices for comparing health care services**

32. The concept of prices is linked to the concept of actual market transactions for well-defined health care outputs, where, in a market system, the relative prices of different goods and services are expected to reflect both their relative costs of production and their relative utilities to purchasers (SNA93, Chapter 16). To arrive at transaction prices, it is important that for joint public-privately paid services, both components of the purchase are brought together (added up, if paid for separately): the amount covered by a public programme plus the cost-sharing paid for by private households. The following explanation on transaction prices is taken from the draft Eurostat-OECD PPPs manual.

| **Box 2. Defining transaction prices for joint public-private payment** |

For example, in many countries, payments for medical services are shared between households and government. Either households pay the medical practitioner in full and subsequently receive the government’s share as a reimbursement or both households and government pay their share to the medical practitioner directly. Whatever the system, in the national accounts, the amounts actually paid by households (based on prices paid less any reimbursements) are recorded under household expenditure and the amounts actually paid by government (based on reimbursements paid to households and/or payments made directly to medical practitioners) are recorded under government expenditure. If households actually pay 20 euros per consultation and government actually pays 80 euros per consultation and 100 consultations take place, 2000 euros would be recorded under household expenditure and 8000 euros under government expenditure. To obtain the correct volume it is necessary to divide both household expenditure and government expenditure by the total or composite price of 100 euros ([2000 / 100] + [8000 / 100] = 100 consultations). Otherwise, if the expenditures are divided by the prices households and government actually paid, that is by 20 and 80 euros respectively, there would be double counting ([2000 / 20] + [8000 / 80] = 200 consultations). To avoid this, countries participating in Eurostat-OECD comparisons are required to report total or composite prices for all final expenditures to which they apply.”

Source: Eurostat-OECD draft PPPs manual, Chapter 2, 2.17 |

33. For health care services, the concept of purchasers’ prices of actual market transactions often does not apply very well. This is obviously the case for non-market services of health care. Either these are provided for free to households, or they are reimbursed by public programmes by third-party payment
arrangements that only partially correspond to actual cost of providing these services. As a result, for
health care, the situation can be complicated due to the multitude of payment arrangements under public
programmes, which have blurred the boundaries between non-market and market production. The same
provider may receive payments that are closer to the concept of transaction prices under one third-party
payment arrangement than from another one.

34. In spite of this blurred boundary, the Eurostat-OECD PPP estimates, and their global version, the
International Comparison Programme (ICP) draw a clear boundary between market and non-market
production (and expenditure). Both are then treated in different ways and have fundamentally different data
requirements for international price and volume comparisons. If SHA-based health accounts are taken as
one of the primary data sources for this project, a fundamental constraint is the fact that the SHA tables do
not distinguish between expenditure on market versus non-market production of health care services, thus
limiting the choice among alternative estimation methods, as outlined below.

The structure of health expenditures: the selection of “basic headings”

35. The project of comparable price levels starts with the definition of components of final demand
on the expenditure side of health accounts. For this purpose, the functional component of the International
Classification for Health Accounts (ICHA) provides the basic levels of aggregation for the estimation of
comparative price levels based on SHA-based health accounts. It is a basic principle of the SHA
framework that functionally defined expenditure categories lead to better comparable aggregates, in
principle. It is on this dimension of health expenditure (the ICHA-HC) that output measures can best be
linked for international comparisons in comparative ways. Table 1 proposed a list of functionally defined
expenditure categories, which have been regrouped from the ICHA-HC categories. Because prices may
differ between public and privately purchased services, and issues of non-market production only arise for
certain purchasers (government and non-profit organisations), a basic breakdown of expenditure by broad
purchaser categories is maintained in Table 1.1

36. From the standard tables of the SHA it is clear that these do not allow for distinguishing between
market and non-market services. Although the framework of the SHA manual clearly distinguishes
between the two for defining expenditure in the same way this is done in National Accounts, and as a
recommendation for the estimation process (SHA, 2000), the SHA manual currently does not ask
administrations in member countries to report on this additional breakdown. The different treatment of
market versus non-market production in price comparisons applies both to international comparisons and
national comparisons over time. Table 2 below therefore also is an illustration of the kinds of links needed
(and additional detail and cross-walks) when SHA-based health accounts are linked to improved measuring
of price indices over time, linked to health accounts.

1 . For the purposes of defining expenditure headings for H-PPP estimates, it remains to be analysed if a full
switch to a provider breakdown on the second level of classification should be aimed at. At the expense of
some degree of comparability on the expenditure side this may in fact facilitate the task of disaggregating
spending in market versus non-market production, which , as will be argued below is important. This
would result in a breakdown very similar to Standard Table 1 in the SHA manual.
Table 1. Functionally defined expenditure categories by purchaser for H-PPPs

<table>
<thead>
<tr>
<th>ICHA-HC function of health care</th>
<th>Expenditure category for H-PPP</th>
<th>ICHA-HF source of funding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>General government</td>
</tr>
<tr>
<td>HC.1; 1.2; 2.1; 2.2; 2.3; 3.1; 3.2; 3.3</td>
<td>In-patient curative and rehabilitative care including day cases</td>
<td>HF.1</td>
</tr>
<tr>
<td>HC.1.3.1; 1.4; 2.3; 3.4</td>
<td>Curative and rehabilitative care: ambulatory, outpatient &amp; home care</td>
<td>20.00</td>
</tr>
<tr>
<td>HC.5</td>
<td>Medical goods in ambulatory care (2)</td>
<td>50.00</td>
</tr>
<tr>
<td>HC.6; HC.7</td>
<td>Public health and health administration</td>
<td>60.00</td>
</tr>
<tr>
<td>HC.7</td>
<td>Total current expenditure on health care</td>
<td></td>
</tr>
</tbody>
</table>

(1) This item includes freestanding clinical laboratory; diagnostic imaging; and patient transport.
(2) Included are fitting of prosthesis; eye tests and other services of providers of these goods.

Note: HF.2.5 (enterprises) and HF.3 (rest of the world) have been excluded from the picture.

Moreover, the SHA standard tables currently do not include the distinction between private cost-sharing and other out-of-pocket expenditure, although this is part of the three-digit level of the ICHA-HF funding (purchasing) component of the health expenditure classification. If both distinctions would be made for the purpose of price and volume comparisons, this would result in the more detailed Table 2 shown below.
Table 2. Expenditure categories adapted for price comparisons

<table>
<thead>
<tr>
<th>ICHA-HC function of health care</th>
<th>Expenditure category for H-PPP</th>
<th>Source of funding adapted for price comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>HF.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Government own production</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC.1.1; 1.2; 2.1; 2.2;</td>
<td>10.00 In-patient curative and rehabilitative care including day cases</td>
</tr>
<tr>
<td>HC.1.3; 1.4; 2.3; 2.4; 3.4</td>
<td>20.00 Curative and rehabilitative care: ambulatory, outpatient &amp; home care</td>
</tr>
<tr>
<td>HC.1.3.1</td>
<td>20.01 Basid medical and diagnostic services</td>
</tr>
<tr>
<td>HC.1.3.2</td>
<td>20.02 Dental care</td>
</tr>
<tr>
<td>HC.1.3.3</td>
<td>20.03 All other specialised health care</td>
</tr>
<tr>
<td>HC.1.3.9</td>
<td>20.04 All other ambulatory and outpatient care</td>
</tr>
<tr>
<td>HC.3.1; 3.2; 3.3</td>
<td>30.00 Long-term care services</td>
</tr>
<tr>
<td>HC.3.1</td>
<td>30.01 Long-term care in institutions</td>
</tr>
<tr>
<td>HC.3.2; HC.3.3</td>
<td>30.02 Long-term care: home care</td>
</tr>
<tr>
<td>HC.4</td>
<td>40.00 Ancillary services to health care (1)</td>
</tr>
<tr>
<td>HC.5</td>
<td>50.00 Medical goods in ambulatory care (2)</td>
</tr>
<tr>
<td>HC.5.1.1/2</td>
<td>50.01 Pharmaceuticals</td>
</tr>
<tr>
<td>HC.5.1.1</td>
<td>50.01.1 Prescribed medicines</td>
</tr>
<tr>
<td>HC.5.1.2</td>
<td>50.01.2 Over-the-counter medicines</td>
</tr>
<tr>
<td>HC.5.1.3</td>
<td>50.02 Other medical non-durables</td>
</tr>
<tr>
<td>HC.5.2</td>
<td>50.03 Therapeutical appl.: other medical durables</td>
</tr>
<tr>
<td>HC.5.2.1</td>
<td>50.03.1 Glasses and other vision products</td>
</tr>
<tr>
<td>HC.5.2.2</td>
<td>50.03.2 Orthopaedic appliances; other prosthetics</td>
</tr>
<tr>
<td>HC.5.2.3-5.2.9</td>
<td>50.03.3 All other misc. durable medical goods</td>
</tr>
<tr>
<td>HC.6; HC.7</td>
<td>60.00 Public health and health administration</td>
</tr>
<tr>
<td>HC.6</td>
<td>60.01 Prevention and public health services</td>
</tr>
<tr>
<td>HC.7</td>
<td>60.02 Health administration and health insurance</td>
</tr>
<tr>
<td>HC.1-HC.7</td>
<td>Total current expenditure on health care</td>
</tr>
</tbody>
</table>

(1) This item includes freestanding clinical laboratory; diagnostic imaging; and patient transport.
(2) Included are fitting of prosthesis; eye tests and other services of providers of these goods.

- Non-market services: no transaction prices observable
- Market services: market prices observable
- Does not apply

Note: HF.2.5 (enterprises) and HF.3 (rest of the world) have been excluded from the picture

38. Table 2 distinguishes two components of government expenditure: on market and non-market services, and separates from out-of-pocket spending two corresponding cost-sharing components, now allocated to government spending to show the full expenditure underlying each transaction. Clearly, such a breakdown is much more detailed than the one used in the national accounts framework, and results in many more elementary expenditure cells (or “basic heading”) than are used for the Eurostat-OECD PPP estimates. Table 3 shows, which simplifications are used in the PPP classification, such as lumping together government own production across all SHA functions. In addition, this table illustrates how ICHA-HC functional categories roughly map to the SNA/PPP classification. Obviously the link is closer in
the medical goods part of these different classifications than in the services part, which in the SNA classifications (COICOP, COFOG) still is a mixture of functional and provider aspects, perhaps most visible for the “Hospital service” category.

### Table 3. Reference PPPs and cross-walk between modified ICHA-HC/HF categories and health items in the Eurostat-OECD PPPs

<table>
<thead>
<tr>
<th>ICHA-HC function of health care</th>
<th>Expenditure category for H-PPP</th>
<th>Source of funding adapted for price comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed grouping for H-PPPs</td>
<td></td>
<td>Government own production</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private household cost sharing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Government from private sector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private household cost sharing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private insurance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private household out-of-pocket expenditure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“over the counter”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-profit households serving households</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HC.1.1; 1.2; 2.1; 2.2;</td>
<td>10.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>In-patient curative and rehabilitative care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>including day cases</td>
</tr>
<tr>
<td>HC.1.3; 1.4; 2.3; 3.4</td>
<td>20.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Curative and rehabilitative care: ambulatory,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>outpatient &amp; home care</td>
</tr>
<tr>
<td>HC.1.3.1</td>
<td>20.01</td>
<td>Basid medical and diagnostic services</td>
</tr>
<tr>
<td>HC.1.3.2</td>
<td>20.02</td>
<td>Dental care</td>
</tr>
<tr>
<td>HC.1.3.3</td>
<td>20.03</td>
<td>All other specialised health care</td>
</tr>
<tr>
<td>HC.1.3.9</td>
<td>20.04</td>
<td>All other ambulatory and outpatient care</td>
</tr>
<tr>
<td>HC.3.1; 3.2; 3.3</td>
<td>30.00</td>
<td>Long-term care services</td>
</tr>
<tr>
<td>HC.3.1</td>
<td>30.01</td>
<td>Long-term care in institutions</td>
</tr>
<tr>
<td>HC.3.2; HC.3.3</td>
<td>30.02</td>
<td>Long-term care: home care</td>
</tr>
<tr>
<td>HC.4</td>
<td>40.00</td>
<td>Ancillary services to health care (1)</td>
</tr>
<tr>
<td>HC.5</td>
<td>50.00</td>
<td>Medical goods in ambulatory care (2)</td>
</tr>
<tr>
<td>HC.5.1.1/2</td>
<td>50.01</td>
<td>Pharmaceuticals</td>
</tr>
<tr>
<td>HC.5.1.1</td>
<td>50.01.1</td>
<td>Prescribed medicines</td>
</tr>
<tr>
<td>HC.5.1.2</td>
<td>50.01.2</td>
<td>Over-the-counter medicines</td>
</tr>
<tr>
<td>HC.5.1.3</td>
<td>50.02</td>
<td>Other medical non-durables</td>
</tr>
<tr>
<td>HC.5.2</td>
<td>50.03</td>
<td>Therapeutical appl.; other medical durables</td>
</tr>
<tr>
<td>HC.5.2.1</td>
<td>50.03.1</td>
<td>Glasses and other vision products</td>
</tr>
<tr>
<td>HC.5.2.2</td>
<td>50.03.2</td>
<td>Orthopaedic appliances; other prosthetics</td>
</tr>
<tr>
<td>HC.5.2.3-5.2.9</td>
<td>50.03.3</td>
<td>All other misc. durable medical goods</td>
</tr>
<tr>
<td>HC.6; HC.7</td>
<td>60.00</td>
<td>Public health and health administration</td>
</tr>
<tr>
<td>HC.6</td>
<td>60.01</td>
<td>Prevention and public health services</td>
</tr>
<tr>
<td>HC.7</td>
<td>60.02</td>
<td>Health administration and health insurance</td>
</tr>
<tr>
<td>HC.1-HC.7</td>
<td></td>
<td>Total current expenditure on health care</td>
</tr>
</tbody>
</table>

(1) This item includes freestanding clinical laboratory; diagnostic imaging; and patient transport.
(2) Included are fitting of prosthesis; eye tests and other services of providers of these goods.

- Non-market services: no transaction prices observable
- Market services: market prices observable
- Does not apply and/or not part of “health” in SNA classification

Note: HF.2.5 (enterprises) and HF.3 (rest of the world) have been excluded from the picture

For PPPs of the target category, the PPPs of the original category are used as reference (i.e., no own estimate is calculated)
39. As a result, the PPP classification has 25 health items on the lowest level, on which health expenditure categories are defined, which is more than 10% of all basic headings used for total GDP (see Table 4).

40. The principle of reference PPPs is illustrated by the arrows in Table 2: for cells to which an arrow points, no original PPPs are estimated. The PPPs estimated for the cell at the origin of the arrow are instead taken as a reference. As Table 3 shows, no original PPP estimates are undertaken for any of the categories of government purchases from private sector providers. Corresponding PPPs from functions of private health consumption are taken instead as reference PPPs. There is one exception: PPPs for government purchases from private sector hospitals are estimates with the PPP of total government non-market (own) production taken as reference PPPs (see Chapter 5 in the draft Eurostat-OECD PPP manual, Box 5.3). Nonetheless, already with these simplifications, the Eurostat-OECD 2002 PPP questionnaire comprised around 540 individual items, of which some 460 (or 85%) are pharmaceuticals (see Chapter 3 for more detail about the non-pharmaceutical items).

Table 4. Health and medical care items in Eurostat-OECD 2002 PPP estimates

<table>
<thead>
<tr>
<th>Main aggregates</th>
<th>Categories</th>
<th>Groups</th>
<th>Classes</th>
<th>Basic headings</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.00 Individual consumption expenditure by households</td>
<td>13</td>
<td>48</td>
<td>109</td>
<td>148</td>
</tr>
<tr>
<td>.06 Health</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>12.00 Individual consumption expenditure by NPISHs</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>.02 Health</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>13.00 Individual consumption expenditure by government</td>
<td>5</td>
<td>7</td>
<td>16</td>
<td>29</td>
</tr>
<tr>
<td>.02 Health</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>14.00 Collective consumption expenditure by government</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>15.00 Gross fixed capital formation</td>
<td>3</td>
<td>6</td>
<td>13</td>
<td>32</td>
</tr>
<tr>
<td>16.00 Change in inventories and acquisitions less disposals of valuables</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>17.00 Balance of exports and imports</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Health</td>
<td>3</td>
<td>6</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>GDP</td>
<td>31</td>
<td>71</td>
<td>152</td>
<td>226</td>
</tr>
</tbody>
</table>

Source: Eurostat-OECD (2005)

41. Table 3 is key to understand how a strategy needs to be designed to improve the health component of the standard PPP estimates in order to arrive at more robust H-PPPs, with more potential for health policy analysis. In a nutshell, each of the “reference price arrows” in Table 3 needs to be carefully investigated and ways have to be found to replace PPPs for individual cells (expenditure categories) with true estimates based on original data. This is especially critical for the “big spending” item of inpatient care. In addition, as will be argued below, input price estimates should be replaced by indirect volume comparisons.

Where to start from: comparing prices or volumes (quantities)?

42. This section discusses the basic choices available for estimating price/volume comparisons between countries for health care services. The measurement of real spending differences on health care services can in principle be based on direct price level comparisons, or - alternatively - on indirect
measurement via quantity indicators. In the absence of market transaction and market prices, input prices are currently used in the ICP and Eurostat/OECD comparisons. A less frequently used method is the comparisons of input quantities. The following table summarises the different methods from the perspective of their data requirements. Consequently, four possible methods have been proposed for international comparisons: the input price approach; the input quantity approach; the output price method; and the output quantity method.

<table>
<thead>
<tr>
<th></th>
<th>Price</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>Detailed expenditures on inputs (labour and intermediate inputs); average salary data of selected occupations (1)</td>
<td>Detailed expenditures on inputs (labour and intermediate inputs); numbers of workers in selected occupations</td>
</tr>
<tr>
<td>Output</td>
<td>Detailed set of unit prices for market prices; alternatively imputed prices of selected services (cost estimates) for non-market services</td>
<td>Detailed list of selected services; representative mapping to expenditure categories</td>
</tr>
</tbody>
</table>

Source: adapted from Tandon et al. (2002, Table 4)

(1) The Eurostat-OECD comparisons collect for this purpose data on 17 input items, among which are 3 salary items.

43. For most components of GDP, prices are usually considered to be easier to observe for the purpose of PPP estimates than quantities and to have a smaller variability than direct measures of relative quantities (Eurostat-OECD, 2005). For the international comparison of health care services, however, there are many obstacles towards defining and measuring unit prices across countries, as outlined above.

44. For non-market health care services, the Eurostat-OECD comparisons use for this reason the input-price approach. Obviously, this approach cannot take into account labour productivity differences between countries. In principle, adjustments could be made using differences (rations) in employee compensation rates in market services. However, these adjustments are highly speculative, in the absence of real evidence on productivity differences in health care services between countries. Another adjustment would be to attach different weighting schemes to the occupational groups used in the input-price estimates.

45. None of these refinements seem to result in robust estimates for price levels in health care services that would warrant meaningful results for to kind of analysis sketched in Chapter 1. The input cost approach has therefore been met with much scepticism in recent years (see e.g., the review of Ian Castle, 1997).

46. Another alternative approach to the input-price method for non-market services would be to calculate hypothetical output prices based on public reimbursement mechanisms. There, the problem is that observable “unit prices” for health services frequently are not closely related to production cost. Comparability problems would, e.g., stem for the fact that cost of investment (important for the capital
consumption component of cost estimates), may be covered by a dual payment method, with fee-payments only covering part of these cost. The estimation problem is aggravated in situations when provider groups (most prominently hospitals) run substantial deficits, covered by public subsidies.

47. Finally, it has been proposed to use as proxies for “unit prices” of non-market production the prices observed from parallel markets of privately financed health care services. But again, the observed biases from this estimation method have been found to be too important as to lead to estimates usable for the analytical purposes outlined in Chapter 1.

48. For all these reasons, only indirect price comparisons will yield meaningful estimations for health policy analysis. Another advantage of this approach is that secondary data source, mainly from administrative source, which are already used in international comparisons of health care, could be used, if refined for the purpose of this project. In contrast, a system of unit price indicators would need substantial additional new surveys and international data collection efforts. The limitations of attempts of collecting internationally comparable prices (versus quantities), has also been concluded in comments on the OECD Ageing Related Diseases project that, among others, looked into disease-specific cost and expenditure (Triplett, 2003).  

**Basic data requirements: concepts**

49. Overall comparability of price and volume comparisons in health care depends on several conditions. On the macro level these are:

- The definition of health expenditure is the same, following a common framework;
- Health expenditures are estimated in the same way, consistently with the common framework.

50. For this project, the common framework is provided by the OECD SHA manual, complemented by additional guidelines currently under development, such as for refining definitions on long-term care (DELSA/ELSA/HA(2005)4). Improving the consistency of expenditure estimates is an ongoing endeavour, and further improvements are needed to better harmonise current estimates for the purposes of international comparisons (Orosz/Morgan, 2004).

51. For volume (quantities) measurement on the basic level of expenditure categories a number of criteria have to be met: consistency with the expenditure estimates; comparability of indicators chosen, and their representativity for the expenditure category in question. These concepts have been borrowed (and only partially adapted) from the PPP literature (Eurostat-OECD 2002 PPP benchmark; draft Eurostat-OECD PPP manual).

**Consistency**

52. Whether unit prices or volumes are chosen as starting point for comparisons between countries at basic headings (basic level of comparison), these indicators have to be chosen consistently with the way the corresponding expenditure category has been defined, and nationally estimated, keeping in mind the basic equation: expenditure = price x volume, where the price component either refers to national annual

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2. The first two approaches in Table 1 could, nonetheless, be used to provide additional information. Indicators derived in this way may well provide valuable explanations for the volume/price differences revealed by the later approaches and thus provide relevant information in their own right and for further analytical purposes.
average of the purchaser’s price of actual market transaction or to hypothetical average price measured indirectly via volume measurement.

53. This implies the following requirements for selecting consistent volume measures:

- **Timing**: indicators for volume measures must refer to all services provided/consumed during a given year;
- The underlying output definition is the one proposed for health care services above.

54. For **unit price measures** to be consistent with the corresponding expenditure categories this means:

- Measures for unit prices need to be averages over regional variations in prices; as well as represent annual averages.
- Unit prices have to be averages for the reference year.
- The national annual prices have to be purchasers’ prices which correspond to market transaction prices. – where a purchaser’s price is defined as the amount paid by the purchaser in order to take delivery of a unit of a good or service at the time and place required by the purchaser. It is the net price inclusive of all discounts, surcharges, rebates and, in the case of certain services, invoiced service charges and voluntary gratuities (such as under-the-table payment for health services). It includes supplier’s retail and wholesale margins, separately invoiced transport and insurance charges, non-deductible tax on products.

**Comparability**

55. Comparability refers to the requirement that unit price and/or volumes of products are compared that are identical or, more realistically, equivalent. For health care services, the following dimension/criteria should be analysed:

- Are comparable health care technologies, medical knowledge applied? As a test, the PPP manual lists as a criterion that purchasers who would have access to both services (the comparable service in both countries) would be indifferent between the services provided in both countries, in particular not prepared to pay more for one than for the other.
- A weaker condition is: Are services comparable in the sense that the same needs are met with equal efficiency? Are staff qualifications, such as educational level, training curricula (including continuing training) comparable between countries for the typical provider categories involved in the production of the services under the basic heading in question?
- The concept of comparable products implies that differences in prices between countries for a product reflect “actual” price differences and are not influenced by differences in quality.

56. To make this concept operational, a number of tools could be borrowed, and would need to be refined form the Eurostat-OECD manual:

- Specification of services (and of medical goods) have to be as detailed as possible but still generic enough so that a sufficient number of countries are able to report according to this specification.
• For specifications of medical goods the ideal are brand and model specific definitions, which would make sure that countries price products of identical quality. But this may often not be possible as data are either not available for several countries or not representative in some countries, at this detail of specification.

• For health care services, obviously, more generic specifications have also to be employed and inevitably some variability in quality between the products priced by countries will occur. Quality differences can arise as a result of countries pricing items that do not match exactly the product specifications.

57. Where services are not comparable because of quality differences, the question is whether one should adjust prices to compensate for differences in quality. For the Eurostat-OECD PPP benchmark estimates, such as strategy is not followed. This could, however, be considered for the project of H-PPPs (see Chapter 4 on Accounting for difference in quality).

Representativity

58. It is straightforward to understand the rationale of this concept. Individual products are called representative for the expenditure in country A under a basic heading (lowest level of aggregation), if their price levels are close to the average for all the similar products under this heading (when price comparisons are the starting point). As the Eurostat-OECD PPP manual puts it “Usually, though not necessarily, the purchases of the product will account for a significant proportion of the total purchases of all products covered by the basic heading.”

59. When volume (quantity) comparisons are the starting point, individual products are called representative if their volume accounts for a large part, or the bulk of the total volume of services in country A.

Calculation and aggregation of price and volume comparisons

60. Calculating PPPs from price or volume relatives across countries and their aggregation is a complex task. A growing number of methods has been developed for this purpose. There are fundamental differences: calculation and aggregation can be done mainly via indices, or by regression methods. There are a number of criteria or desirable properties, which PPP calculations fulfil to varying degrees, no method fulfilling all of them.
Table 6. Properties of PPP calculations

<table>
<thead>
<tr>
<th>Desirable properties</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base country invariant</td>
<td>All participating countries are treated symmetrically. As a consequence each country can be taken as a base for comparison.</td>
</tr>
<tr>
<td>Transitivity</td>
<td>Requires that the indices (PPPs or volume ratios) between any pair of countries in the comparison be the same whether derived from the direct comparison between them or from the comparison of each of the two with any third participating countries. This allows for a unique cardinal scaling of countries with respect to value ratios and PPPs. (Stat.Austria, 2001, p.3)</td>
</tr>
<tr>
<td>Characteristicity</td>
<td>“This property implies that the samples of items priced (or quantities) and weights (or common international prices) used in an international comparison, are representative of all participating countries. This property is easier to satisfy in bilateral comparison, especially if the two comparing countries are similar, than in a wider group of countries involved.” (Stat.Austria, 2001, p.3)</td>
</tr>
<tr>
<td>Additivity</td>
<td>An aggregation procedure is additive, if countries’ real values at any level of aggregation can be obtained as the sum of real values of lower level categories of a given aggregate.</td>
</tr>
</tbody>
</table>

61. PPP calculation and estimation methods fall in two classes (Hill, 2002). The first class makes bilateral comparisons between all possible pairs of countries. The second class compares each country with an artificially constructed average country. The EKS-method, most widely used, belongs to the first class.

The EKS-method

62. For the Eurostat-OECD benchmark estimation, the EKS-method is currently use, which is mainly based on index calculations. It is worth briefly sketching the calculations involved as an illustration of their complexity. To obtain country invariance and transitivity, at the first stage of calculation, a matrix of binary comparisons are calculated for all country pairs. Because the resulting matrix of binary comparisons is not transitive, in a next step the direct PPP between each pair of countries is replaced by the geometric mean of itself squared and all the corresponding indirect PPPs between the pair obtained using the other countries as a bridge.

63. Additional calculations at this stage allow for “bridging” countries for which a direct comparison could not be calculated due to missing data. Allowance is also made for the fact that not all basic data needed for the comparisons may be representative in both countries. Aggregations are calculated by first calculating Fisher-type PPPs between country groups (the geometric mean of two weighted PPPs, one with the weights of the first country, another with the expenditure weights of the second. Transitivity is then introduced in the same way as for the binary comparisons in the first step.

64. As a result, the EKS-method is transitive and base-country invariant, but not additive. From the above calculations it is apparent that the results of the EKS-method for two countries (such as their relative position) can change if the group of countries included in the comparison changes. If PPPs for a group of countries should remain unchanged within a larger group of countries, special methods for linking have been developed.
Alternative approaches and hybrids

65. Other approaches, like the CPD (Country product dummy) method do not start from binary comparisons but attempt a multilateral comparison via regression analysis. However, for health care analysis, binary methods seem to be superior. Binary comparisons allow in principle to compare available similar, better comparable goods and services between countries. The EKS method distinguishes for this purpose between “representative” and “unrepresentative” goods, and calculates separate binary comparisons for the two. There are several variants of this method. However, this means that a larger number of goods need to be specified on the basic level of comparison (level of basic expenditure weights). This can be applied to medical goods like pharmaceuticals, for which a sufficient number of products are collected in the Eurostat-OECD PPP estimates.

66. For the comparison of health care, where services account for the bulk of expenditure, it should be worth to search for calculation and aggregation methods which explicitly exploit the fact that groups of countries with traditionally similar organisation of health care often have similar information systems and should in principle be easier to compare than others. This means however, that individual lists of comparable service bundles have to be found for each of these groups, or for a few reference countries.

67. Although chaining is now widely used in time-series comparisons, it has not made much impact on the international comparisons literature. This is because an international comparison lacks a natural ordering of countries analogous to the chronological ordering of a time series.

68. A promising methodology, in particular for comparisons in health care would therefore be to link countries together, so that international price and quantity indexes can be obtained via chaining, a method now increasingly used for time-series comparisons. As has been argued in a recent paper by Hill, chaining can considerably simplify, and cut the cost of, multilateral international comparisons, while at the same time increasing characteristicity (Hill, 2002). Further work under this project should test these approaches, also in view of their better transparency, which makes their results easier communicable than more traditional PPP calculation and aggregation methods. The concept of spanning trees for chaining countries as developed in Hill, 2002, seems to be an especially attractive method that should be tested. For example, such a strategy would allow the linking of bilateral comparisons, or local initiatives of small number of similarly organised, - or otherwise interested countries that might be interested to do more intensive work on bilateral (and small-scale multilateral) comparisons.

CHAPTER 3. DATA AVAILABILITY AND OTHER DATA ISSUES BY EXPENDITURE CATEGORY

69. Before deciding on the best way of calculating composite indicators of volumes and/or price levels across countries, a set of indicators has to be established for each detailed level of health expenditure (either unit prices; output measures, or both). Subsequently, each indicator individually will need to be tested for reliability, accuracy and soundness. The issue of whether the list of indicators can be taken as representative has to be solved for each function of health care services separately. As one prominent researcher commented, this is very much a "house-to-house battle", with different challenges for each individual function or sector of health care provider. For non-market services, the starting point will in most cases be a set of indicators for direct volume comparisons between countries for each service part of spending. This suggested departure from the Eurostat-OECD PPP questionnaire and estimates will
hopefully contribute substantially to improving the quality of H-PPPs and its corresponding inpatient care component.

70. A different strategy will apply to medical goods, for which the collection of unit prices is more feasible. For these parts of health spending, it would in fact be wise not to duplicate the large questionnaire on medical goods which is part of the Eurostat-OECD PPP estimation, but to join forces with this project, as will be further detailed in this chapter. The same is the case for a number of ambulatory services, including ancillary services, for which the PPP questionnaire includes a number of detailed specifications. Here, again, the suggested strategy would be to rather amend and improve than to switch to different (secondary) data sources, from administrative records and national health information system. There will, however, be the point for cross-checking between these two principal sources (PPP questionnaire, and administrative data), as will be exemplified below.

71. The relative magnitude of the expenditure categories is illustrated in this chapter by reference to average spending shares over the thirteen countries for which SHA-based health accounts have recently been published (Oroz/Morgan, 2004). Roughly speaking, up to half of health care spending seems at first inspection to fall in the category of "more tractable" for volume measurement, if data are combined from both the Eurostat-OECD PPP project and from OECD Health Data and other emerging data sets at the OECD Health Division: medical goods (both durable and non-durable medical goods, long-term care, and dental care). The bulk of the other half falls in the category "difficult, but for which solutions/proposals have to be found", and a smaller rest in the category "comparison resistant". The "more difficult" section includes the bulk of the services that are at the heart of the health policy debate and reform in many member countries: ambulatory and out-patient care (other than dental care), inpatient care (other than long-term care), and services of day care, including a large and growing part of elective surgery.

10.00 Inpatient curative and rehabilitative care including day cases

72. This is the largest spending item, accounting for in between around 24 to 54 percent of total current spending, with a median of 35 percent. One of the main constraints of the Eurostat-OECD PPP estimates for health care is the fact that the PPP questionnaire does not include items for hospital (inpatient) care, but uses reference PPPs instead: PPPs for total government non-market production, which is based on the input-price method, are used as reference price for both private expenditure on hospital care, and for the total of government purchases (and reimbursements) of hospital care from the private sector, (including government owned hospitals that are market producers) (see Table 3).

73. Because hospital care is such a big spending item, following this strategy potentially can distort the results of the total health component of PPPs substantially. Moreover, these distortions will get worse over time, as more countries implement hospital reform under which public hospitals become economically independent entities which can make both profit and losses, and may typically also serve the private market, funded by insurance or out-of-pocket payment for amenities in hospitals, from fees on parking lots, and the like. For example, in Canada these so-called “non-consumption” expenditure (earnings) account for a non-negligible amount.

74. On the more positive side, data on inpatient care from secondary sources (administrative records) have become in recent years relatively more abundant compared to other functions of health care, and the spread of DRG-type payment systems has raised the expectation of a growing number of indicators that can potentially be used to construct output measures for non-market producers, and transaction prices for market producers. However, the analytical value of currently available inductors, such as numbers of

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3. This expression is used here in the sense it was given in the framework of the ICP project, where "comparison resistant" means not being a good choice for heavy investing in further data development.
discharges by DRG categories, for international comparisons is a matter of debate in the research community. Some lessons have also been learnt in this respect from the experience with the OECD "Ageing Related Disease Project". This project has aimed at comparing unit prices for the treatment of a number of specific conditions between countries.

Indicators from OECD Health Data

75. There are a number of potential data on activity level/volume for inpatient services available in OECD Health Data. While the indicator on number of acute care bed days is not a good indicator for comparing real resource use internationally, the list of indicators on surgical procedures, and on discharges by ICD categories, should be thoroughly tested for their potential to be used in analysing volume differences between countries.

76. While constructing volume measures for international comparisons based on the full list of DRG groups or list of surgical procedures may not result in robust measures, a short-list for a number of sub-categories should be tested. The criteria for selection will be: high-volume and high cost cases; well-defined procedures; in general DRG groups with high growth from an already substantial level, either due to the trends of higher concentration of particular health problems on an ageing populations (as studied in the ARD project), or because of dynamic technological development, or both.

20.00 Curative and rehabilitative care: ambulatory, outpatient & home care

77. Data are still scarce for international comparisons of ambulatory care, both for general practice and specialist care. Besides, the question of defining the "output" of general practice raises very complex issues regarding what the "production function" of this sector of health care delivery is. Typically, general practice brings together very diverse roles of gate keeping and primary diagnosis, social and public health functions (such as prevention), and finally treatment, frequently involving prescribing (or even dispensing) drugs.

78. All together, expenditure on these functions of health care range between around 20 to over 40 percent of total current expenditure, with a median of 27 percent. The Eurostat-OECD PPP questionnaire already contains a range of specifications for collecting unit prices for ambulatory care (Table 7).
Table 7. Ambulatory care in the Eurostat-PPP health specifications

<table>
<thead>
<tr>
<th>20.00 Ambulatory and out-patient services</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.01 General practitioner: Consultation</td>
</tr>
<tr>
<td>General practitioner: Consultation by telephone</td>
</tr>
<tr>
<td>General practitioner: Examination for driving licence purposes</td>
</tr>
<tr>
<td>General practitioner: Home visit</td>
</tr>
<tr>
<td>20.02 Dentist: Extraction of a tooth</td>
</tr>
<tr>
<td>Dentist: Mounting of crown</td>
</tr>
<tr>
<td>Dentist: Mounting of dental appliance</td>
</tr>
<tr>
<td>Dentist: Plastic filling</td>
</tr>
<tr>
<td>Dentist: Root treatment</td>
</tr>
<tr>
<td>Dentist: Routine check-up</td>
</tr>
<tr>
<td>Dentist: Scaling &amp; Oral Hygiene Instruction</td>
</tr>
<tr>
<td>Dentist: Silver amalgam filling</td>
</tr>
<tr>
<td>20.03 Ear specialist (Otologist): Consultation</td>
</tr>
<tr>
<td>Eye specialist (Ophthalmologist): Consultation</td>
</tr>
<tr>
<td>Eye specialist (Ophthalmologist): Sight test examination</td>
</tr>
<tr>
<td>Internal illness specialist (Internist): Electrocardiogram report</td>
</tr>
</tbody>
</table>

Source: Eurostat-OECD PPPs, 2002, health specifications

20.01 Basic medical and diagnostic services

79. At first inspection, there are no major ways to improve the list of four items in Table 7, and the specifications of individual items (see OECD, 2002c, for the full specifications to each of these items). Providing more specific definitions would probably involve recurring to an international classification like the International Classification for Primary Care (currently ICPC-2 see http://www.globalfamilydoctor.com/WICC/ for the WONCA Classifications Committee), and this might be costly.

80. It is currently difficult to distinguish number of services provided by medical specialists form general medical and diagnostic services from the data in international data sets. There are both methodological and data challenges. Partially these also affect the expenditure estimates in SHA-base health accounts itself, where some countries find it difficult to draw the boundary line consistently with the SHA manual. Internationally, there is one “volume” indicator available from OECD Health Data, which combines the number of doctor’s consultations of both general practitioners and specialists.

81. As noted in OECD Health Data, the number of physician contacts is only a crude measure of the volume of services provided, as services are added regardless of their complexities. Several countries record only general practitioners, others include specialists. One way forward, which has been proposed by the Eurostat, 2001, handbook, is to count only the number of first visits per treatment event, which in any case needs to be done separately for general medical practice and specialists.

Indicator from OECD Health Data

A complementary volume measure is available from OECD Health Data:
Box 3. Doctor’s consultations (OECD Health Data)

Doctors’ consultations: The number of contacts with an ambulatory care physician divided by the population:

The number of contacts includes:

- visits/consultations of patients at the physician’s office;
- physician’s visits made to a person in institutional settings such as liaison visits or discharge planning visits, made in a hospital or nursing home with the intent of planning for the future delivery of service at home;
- telephone contacts when these are in lieu of a first home or hospital visit for the purpose of preliminary assessment for care at home;
- contacts in out-patient wards should be included;
- visits made to the patient’s home.

82. An alternative starting point would be to measure unit prices for a well-defined consultation, such as a first contact visit with full examination. This would provide additional information, at least for quality control of the expenditure/volume part of activities under this heading.

20.02 Dental care

83. Dental care accounts for between four to over eight percent of current health expenditure, with a median of 6.4 percent.

84. Dental care provided on an ambulatory and out-patient basis differs substantially from other health care services. The products (both output and quality) are in principle easier to define than for other health care services and measurement is generally more straightforward. Output is relatively easy to define on a limited scale of most frequently provided procedures (see Table 7 above). Prices and quality are clearly correlated for inlays, fillings, and other restorative and prosthetic procedures. Quality of care is highly dependent on best practice to be followed, which has even led to attempts to request guaranties to be granted by dentists on minimum life span of fillings and the like, for standard cases.

85. This does not mean that data are readily available internationally. However, an agreement on concepts and an indicator list for dental care should in principle be among the more tractable parts of the project and could start a process in member countries to open up the necessary data sources. Differences in price levels for comparable services may in fact explain a larger part of spending differences compared to other health care services. There is evidence that expenditures on dental care are correlated to the relative income position of dentists compared to other specialists. Dentist may in fact have earnings at either end of the income spectrum of specialist.

20.03 All other specialised health care

86. Activities on these services are currently available for day-cases of surgery in OECD Health Data. All four indicators under the PPP project seem worth continuing, ideally complemented with control-data on volumes. Because ambulatory surgery (on a day-case basis) is one of the most dynamic sectors of care, indicators to cover surgery should have a high priority for improved coverage and enlarged data collection.

30.00 Long-term care services

87. There are currently still considerable differences in national accounting practice, and many countries still include only (smaller) parts of long-term care in total health care spending. For ten countries
reporting on this category, the share in total expenditure lie in a range between close to zero and 23 percent of total current expenditure, with a median of 4.3 percent. These accounting problems will need to be addressed in order to avoid distortions in overall volume measurement.

88. The close link between service intensiveness and both disability status and (old) age, should in principle allow to define and measure the output/volume of services of the long-term care sector to some degree of reliability, in particular for the most expensive care, which is the care provided in institutions. This should also apply to certain aspects of quality, such as the number of persons having to share a room with another person (other than their partner), and amenities like an own bathroom. The ongoing project on moving data on long-term care expenditure and services to a routine data collection provides overall numbers of recipients by broad care setting (institutions versus home/community).

89. For long-term care, it would be advisable to complement these indicators by a set of average prices for a small list of services, which should in principle be feasible because providers are in most cases paid by fees, and often private (for profit or non-for-profit) institutions. When prices differ across regions, ideally an attempt should be made to calculate averages. The strategy followed by the Eurostat-OECD estimates to compare prices for a “typical” service/price in the capital need to be applied with, due to the provenance of large quality differences and price differentials in metropolitan areas in many countries.

30.01 Long-term care in institutions

90. Indicators that have become available from the project on long-term care services are number of recipients of care in institutions by age groups. The following unit prices would cover a large part of spending:

- Monthly fee for a nursing home for a person with high care needs (such as bedridden) in a single room with/without a private bathroom (services plus accommodation).

- Monthly fee for a private assisted living facility with up to ten hours personal care per week.

30.02 Long-term care: home care

91. Indicators that have become available from the project on long-term care services are number of recipients of home care services by age groups. For home care, two items are included in the PPP questionnaire:
Table 8. Long-term care: home care in the Eurostat-OECD PPP specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| Assistant nurse: home visit | **Patient type: Elderly, handicapped**  
Duration: ± 60 min  
Timing: Normal working hours  
Service: Qualified nurse supervision. Help with personal hygiene, administering light treatment, cleaning and tidying of home, giving of instructions  
Service distance: 5 km  
Location: At home of patient |
| Nurse: home visit          | **Patient type: Elderly, handicapped**  
Duration: ± 15 min  
Timing: Normal working hours  
Service: Routine health check, dispensing of medicines, giving of instructions  
Service distance: ± 5 km  
Location: At home of patient |

Source: Eurostat-OECD PPPs, 2002, health specifications

92. An alternative specification for a representative unit price could be:

- Hourly fee for a home care service for personal care with moderate to severe ADL restrictions (other specifications as above, but without cleaning and tidying of the home).

40.00 Ancillary services to health care

93. Current estimation practice of expenditures on ancillary services varies widely across countries. The observed range from almost zero to about 8.5 percent of current spending is not plausible. The median is 3.5 percent of current expenditure. A list of ancillary services is included in the PPP questionnaire:

Table 9. Ancillary services to health care in the Eurostat-OECD PPP specifications

<table>
<thead>
<tr>
<th>40.00 Ancillary services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory standard check</td>
</tr>
<tr>
<td>Laboratory test: Urine culture</td>
</tr>
<tr>
<td>Laboratory test: Blood sedimentation rate</td>
</tr>
<tr>
<td>Laboratory test: Glucose (urine)</td>
</tr>
<tr>
<td>Laboratory test: Hepatitis A-virus (IgM)</td>
</tr>
<tr>
<td>Laboratory test: Hepatitis B-virus (Anti-HBs)</td>
</tr>
<tr>
<td>Laboratory test: HIV 1+2 anticorps</td>
</tr>
<tr>
<td>Laboratory test: Phadiatop (screening for allergy)</td>
</tr>
<tr>
<td>X-ray photograph</td>
</tr>
</tbody>
</table>

Source: Eurostat-OECD PPPs, 2002, health specifications

For further developments, more technologically advanced procedures might be considered in the health basket (such as MRI, CMT as imaging procedures).
50.00 Medical goods in ambulatory care

94. This is a large and growing component of health care spending. The range of spending on this category lies between 12.6 percent and 34.4 percent of current spending, with a median of 20 percent.

95. In principle the definition of statistical units of goods and direct price measures seem feasible. The Eurostat-OECD PPP benchmark estimates include in fact a large number of medical goods (~740), in particular for pharmaceuticals (~460). As for other goods for private consumption, a challenge here are regional variations, i.e. the question of how to receive estimates of average prices for each country.

96. In addition, a number of recent international studies have come up with estimates of comparative price levels, and there exists a literature comparing their results and commenting on their approaches. There is an obvious case for co-operation with the project on pharmaceutical markets in OECD countries, which is planned for 2005/2006.

50.02 Other medical non-durables

97. This spending function has already 21 specifications in the Eurostat-OECD PPP questionnaire. At first inspection, this list seems well balanced. Concerns of data quality and availability should have priority over further extending this list.

**Table 10. Other medical non-durables in the Eurostat-OECD PPP Specifications**

<table>
<thead>
<tr>
<th>50.02 Other medical non-durables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absorbent cotton wool</td>
</tr>
<tr>
<td>Adhesive plaster (not waterproof)</td>
</tr>
<tr>
<td>Adhesive plaster (waterproof)</td>
</tr>
<tr>
<td>Blister plasters</td>
</tr>
<tr>
<td>Clinical thermometer (electronic)</td>
</tr>
<tr>
<td>Clinical thermometer (mercury)</td>
</tr>
<tr>
<td>Compression bandage (light)</td>
</tr>
<tr>
<td>Compression bandage (strong)</td>
</tr>
<tr>
<td>Condom</td>
</tr>
<tr>
<td>Diapers and pants for incontinence</td>
</tr>
<tr>
<td>Disposable syringe</td>
</tr>
<tr>
<td>Gauze bandage</td>
</tr>
<tr>
<td>Joint bandage</td>
</tr>
<tr>
<td>Net bandage</td>
</tr>
<tr>
<td>Pregnancy test-set</td>
</tr>
<tr>
<td>Soaking solution for contact lenses - 240 ml</td>
</tr>
<tr>
<td>Soaking solution for contact lenses - 60ml</td>
</tr>
<tr>
<td>Sterile cotton gauze (pack of 10)</td>
</tr>
<tr>
<td>Sterile cotton gauze (pack of 20)</td>
</tr>
<tr>
<td>Test-strips (glucose)</td>
</tr>
<tr>
<td>Penetrative Medical Plaster</td>
</tr>
</tbody>
</table>

Source: Eurostat-OECD PPPs, 2002, health specifications
50.03 Therapeutic appliances and other medical non-durables

Again, the current list under the Eurostat-OECD project is rather expansive. It could be further investigated, if current advanced technology is fully represented, but the total number of items should probably not increase substantially.

Table 11. Medical durables in the Eurostat-OECD PPP health specifications

<table>
<thead>
<tr>
<th>50.03 Therapeutic appliances and other medical durables</th>
</tr>
</thead>
<tbody>
<tr>
<td>50.02.1 Contact lenses: disposable</td>
</tr>
<tr>
<td>Contact lenses: soft</td>
</tr>
<tr>
<td>Spectacle lenses</td>
</tr>
<tr>
<td>Spectacle lenses (bifocal +/-2 and +/-4 dioptres)</td>
</tr>
<tr>
<td>Spectacle lenses (bifocal -2 and -4 dioptres)</td>
</tr>
<tr>
<td>Spectacle lenses (multifocal +/-2 and +/-4 dioptres)</td>
</tr>
<tr>
<td>Spectacle lenses (plastic; point focal +/-2 dioptres)</td>
</tr>
<tr>
<td>Spectacle lenses (point focal +/-2 dioptres)</td>
</tr>
<tr>
<td>Spectacle lenses (point focal -2 dioptres)</td>
</tr>
<tr>
<td>Spectacle lenses (point focal -6 dioptres)</td>
</tr>
<tr>
<td>50.02.2 Forearm crutches</td>
</tr>
<tr>
<td>Forearm crutches</td>
</tr>
<tr>
<td>50.02.3 Hearing aid (behind-ear)</td>
</tr>
<tr>
<td>Hearing aid (behind-ear)</td>
</tr>
<tr>
<td>Hearing aid (in-ear)</td>
</tr>
<tr>
<td>50.02.4 Quadruped walking stick</td>
</tr>
<tr>
<td>Rollator (walking frame on wheels)</td>
</tr>
<tr>
<td>Tripod walking stick</td>
</tr>
<tr>
<td>50.02.3 Walker (walking frame)</td>
</tr>
<tr>
<td>Wheelchair for adults</td>
</tr>
<tr>
<td>Wheelchair for adults (lightweight)</td>
</tr>
</tbody>
</table>

Source: Eurostat-OECD PPPs, 2002, health specifications

60.00 Public health and health administration

Among the most difficult "comparison resistant" parts of health expenditure are services of prevention, public health, and administration. First, there are still important differences in health accounting practice, which are responsible for part of the observed spending differences between countries for this health care function. Next, the output of general administration is notoriously difficult to measure. For some preventive activities, selected indicators are available (screening, vaccination), but the extent to which these can or should be taken as representative remains to be investigated. A special case of expenditure that fall in the category "administrative" are services of private insurance. It therefore needs to be decided during the project how much resources should be spent on these (smaller) "comparison resistant" parts of health expenditure.
60.01 Prevention and public health services

The share of this expenditure category ranges from 1.4 percent to 7.2 percent of total current expenditure, with a median of 2.7 percent. There are currently three indicators on immunisation available in OECD Health Data which fall under the heading of prevention and public health.

Indicators from OECD Health Data

- **Immunisation against Diphtheria, Tetanus, Pertussis**: Percentage of children reaching their first birthday who have been fully immunised against Diphtheria, Tetanus and Pertussis (DTP).
- **Immunisation against measles**: Percentage of children reaching their first birthday who have been fully immunised against measles.
- **Immunisation against influenza among the elderly population (65+)**: The proportion of people aged 65 and over who have been immunised against influenza (or “flu”) during the last 12 months.

OECD Quality Indicator Project as potential data source

There is a partial overlap between these indicators from OECD Health Data, and the indicators proposed by the international expert panel on indicators for health promotion and primary care under the OECD Quality Indicator Project. The following list puts in [brackets] those indicators which are not directly linked to activity/volume measurement but are measuring outcomes.

<table>
<thead>
<tr>
<th>Preventive Care</th>
<th>Blood typing and antibody screening for prenatal patients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HIV screen for prenatal patients</td>
</tr>
<tr>
<td></td>
<td>Bacteriuria screen for prenatal patients</td>
</tr>
<tr>
<td>[Immunisable conditions]</td>
<td></td>
</tr>
<tr>
<td>[Low birth weight rate]</td>
<td></td>
</tr>
<tr>
<td>Adolescent immunisation</td>
<td></td>
</tr>
<tr>
<td>Anaemia screening for pregnant women</td>
<td></td>
</tr>
<tr>
<td>Cervical gonorrhoea screening for pregnant women</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B screen for pregnant women</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B documentation in record at time of delivery</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B immunisation for high-risk groups</td>
<td></td>
</tr>
<tr>
<td>Influenza vaccination for high-risk groups</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal vaccination for high-risk groups</td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from DELSA/ELSA/WD/HTP(2004)16

60.02 Health administration and health insurance

This spending category accounts for between 1.7 and 9.3 percent of total current expenditure, with a median of 2.9 percent. It is generally recognised that the output of general administration and insurance is notoriously difficult to measure. A special case of expenditures under this category are services of private health insurance. Although there is an emerging literature on how to compare insurance services, there should probably not much resources been spent on these (smaller) “comparison resistant” parts of health expenditure. Reference PPPs, such as overall H-PPPs could be use to basically “scale up” expenditure for this spending category.
CHAPTER 4. ACCOUNTING FOR DIFFERENCES IN THE QUALITY OF SERVICES

103. There is an emerging consensus that comparisons – both between countries and over time – have to account for differences/changes in the quality of services. There is less agreement on how to measure quality. One-dimensional measures of health gains (such as measured by QUALYs gained) have been proposed by some researchers. These are very demanding, but also may conceptually not well reflect that output can be multi-dimensional. Consultations with general practitioners are an example. Although measures like QUALYs may work well with assessing quality gains of well-defined treatments of certain conditions, their health policy implications need to be further assessed before their use for "measurement" in international comparisons could be recommended. In the end, a pre-condition for their use is units of measurements (outputs) for which the contribution to health gains has been well established, which for large parts of health care services not the case.

104. For international comparisons it seems advisable to first keep volume and quality measurement separate. This would allow for more transparency. The calculation of composite indicators that adjust prices and volumes for quality differences across countries would then be an analytical step, rather than part of a process for "estimating data". The joint analysis of price, volume and quality should be kept as transparent as possible, in particular in the early phases of the project.

105. One way, which has been proposed for the use of quality differences in the estimation of price ratios in international comparisons are hedonic regressions, similar to the technique suggested – and now frequently applied – for comparisons over time (Triplett, 2004). Although proposed for PPPs a time ago (e.g., UN ICP handbook 1992), these seem not to have been used widely, probably due to lack of sufficiently detailed data. It is suggested that these methods are tested, once a data set emerges, brought together from both the project of H-PPPs and the project of quality indicators.

106. From the OECD Health Care Quality Indicator project, there will emerge a potentially rich source of data available. Each single indicator should be evaluated for possible use in estimations for the set of indicators for the volume and price measurement project. Many of the indicators that have been identified as "health care quality indicator" are indirect volume indicators, often measuring how much times an appropriate type of care was provided.
CHAPTER 5. CONCLUSIONS FOR NEXT STEPS

107. There is a sequence of tasks and next steps which follow from the suggestions in this paper on improving health-specific PPPs both on disaggregate and on health sector-wide level.

Refinements of SHA-based health accounts and expenditure estimates

108. Further harmonising the comparability of functionally defined spending items in SHA-based health accounts is an important input to the H-PPP project, providing an essential building block of data required.

109. Moreover, SHA-based health accounts lack some of the basic breakdowns usually needed for price comparisons, in particular that in market versus non-market production. Also, a separation is needed for cost-sharing from total private out-of-pocket. The later is of health policy interest in its own right as is discussed in ELSA/HEA/HA(2005)6&7.

110. The more difficult question is to which extent a full breakdown on the level of functions of health care into market versus non-market production is feasible and desirable. For international price/volume comparisons, various shortcuts should be considered, such as the full allocation of functions to one category by a majority of spending rule. Synergy should be the goal with national initiatives of improving health price indices linked to health accounts, because of the similar data needs that will arise from these national projects.

The selection of indicators on lowest level of comparisons

111. For the elementary list of items to be covered (either unit prices or quantities for indirect comparison), it is important to avoid duplicating efforts of the Eurostat-OECD PPP project. Although there might be room for some improvement of the (already very long) list of items covered, such as by including more cutting-edge technology items, and taking into account fast growing dynamic parts of care provision, the main focus of synergy between the PPP project and the H-PPP project proposed in this paper should be on those big-spending items not covered adequately in the PPP project for the purpose of health policy analysis. In particular this applies to the hospital sector, both for market and non-market services.

Testing and finding the appropriate aggregation strategy

112. A particular promising area for future work could well be testing and finding appropriate alternative aggregation methods, other than the EKS method most frequently used these days. The goal here should be to both increase transparency for the user of the calculations of the sort of complex composite measures that H-PPPs represent. Graph methods like (minimum, or ad-hoc) spanning trees as suggested by Hill (2002) seem promising candidates. These would also allow to link regional results estimated by future regional initiatives, as outlined above.
Division of labour and resources required

113. As this paper has argued, the task of establishing/improving H-PPP estimates is a complex and potentially very resource intensive project. A division of labour with shared burden of responsibility and sponsorship is consequently the most promising way forward.

114. This paper has argued that there must be synergy in co-operation between the Health Division and the Eurostat-OECD PPP project. Many of the data on pharmaceuticals and other medical goods are exactly the type of data needed for estimating solid H-PPPs. Although the Health Division could certainly help with advice on quality checking of available indicators, and work with colleagues in the Statistics Directorate on possible improvements of the list of items selected, the focus of work at the Health Division should be on complementing/improving those parts of the PPP programme, where data are very scare, namely for market and non-market production of inpatient services.

Implementation on the level of pairs and/or small groups of countries

115. It would be great if pairs or small groups of countries would get together and establish working groups to test bilateral and/or small-scale multilateral comparisons. Countries which match with regard of data availability and/or comparable organisation of health systems would be best suited for such pairs or small groups for multilateral comparisons. These could learn from existing initiatives, such as the ongoing comparisons between Canada and the US. There need to be a strong link between national SHA-based health accounting teams and these H-PPP activities. Again, a focus should be on improving comparisons of inpatient care. The task of the OECD Secretariat would then be to provide a model for linking up the various initiatives and to test there validity in the context of larger groups of countries.

Possible country coverage

116. While the methodological part of this project should in principle apply to all member countries, the next steps involving empirical estimates and the testing a variable list for international comparisons will have to start with a smaller group of countries. As weighting schemes from SHA-based accounts will be important, countries which have already SHA-based accounts would be a starting point. However, several of them may overall have no well developed health information systems. And several G7 countries would be missed out (France, Italy, and the US). It needs to be examined to which extent spending structures from national health accounts can be used for the moment being as sufficient proxies for obtaining illustrative results, keeping in mind that even among SHA-based health accounts there is the need for further harmonisation of actual accounting practice in many cases.

Perfect is the enemy of the good

117. The long list of pre-conditions, difficulties, and in general the large gap between what is currently available in terms of H-PPPs in the Eurostat-PPP estimates on the one hand and the detail, quality and reliability of indicators that would be desirable for health policy and analytical purposes on the other, should not obscure the fact that decisive improvements can be achieved if progress is made with some big categories, such as inpatient or hospital care. The margin of error in international comparisons would shrink substantially, if for these spending items an indirect estimate of comparable prices were done by comparing volume measures in case these can be based on recent progress with national hospital care information systems. Basing these estimates (by using as weights) tables from SHA-based health accounts should result in another substantial improvement of precision of estimates. But the true magnitude of improvements can only be assessed, once first data exercises have been undertaken.
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