

II. HEALTH SYSTEM INPUTS

Health system inputs include both physical and financial resources. The concepts and measurements related to these inputs play two distinct roles in WHR 2000. First, they are important to estimating the efficiency of the health system. WHR 2000 explicitly utilized total health spending as the aggregate input in its efficiency estimates, but spending was implicitly being used to reflect the application of physical resources toward improving health.

Secondly, health system inputs were discussed in terms of health system functions. In the case of physical inputs, the conceptual framework discussed both their supply (resource generation) and utilization (under service provision). This section focuses specifically on the WHR 2000 report of financial inputs through the use of National Health Accounts.

1. WHR 2000

Concepts

National Health Accounts (NHA) are a method for quantifying the financial flows of the health system in a comprehensive, consistent, and integrated manner. In WHR 2000 and WHR 2001, the estimates of health expenditure for 191 countries are reported and disaggregated by source. The principal categories are public and private spending, which are further disaggregated into tax-funded, social insurance, out-of-pocket, and private insurance expenditures. WHR 2000 presented the first global NHA estimates using data for 1997. These data have been revised using additional statistical sources. The revised data for 1997 and new estimates for 1998 are presented in WHR 2001. WHR 2001 also included a new sub-category: externally-financed health spending.

Methods

The health system is quite complex, but the nominal value (and, where unavailable, the imputed value) of resources funded and spent in a health system have to be equal to the sum of the value of all goods and services delivered. Using this identity to enforce consistency, NHAs organize health financing information by selecting a group of dimensions that are useful for analyzing this complexity. These dimensions are then summarized in a series of matrices that provide information on expenditures by source, financing agents, providers, and uses. By using common classifications, it becomes possible to learn through comparisons across countries and over time. Efforts are made to report expenditures on an accrual basis (i.e., when the resources are consumed not when payments are made) wherever possible (Poullier and Hernandez 2000).

Data/Evidence/Sources

Complete data were not available for all countries. For WHR 2000, the information was based on 67 country NHA reports for various years. Of these, 30 traced expenditures through the main components of health-care financing: resource mobilization, resource allocation, and service and goods provision. Estimates had to rely on partial information for 124 countries, for which various sources of information on health expenditure were consulted. Figures presented in the WHR are in US dollars at official exchange rates, and also in international dollars converted at purchasing power parities (PPP).

2. Main commentaries and criticisms

Concepts

No one questioned the usefulness of NHA for estimating health expenditure per capita as an aggregate indicator of the inputs available to the system. Nevertheless, some comments were made on the basic concepts, methods and data.

Some reviewers were concerned that WHR 2000 assigned too much importance to the data reported in the National Health Accounts, particularly as the single most important input in calculating the efficiency of health systems. One article stated that "*NHAs seem to be treated as a sort of panacea ... for the purpose of restoring productivity in the Member States' health systems*" (DfID 2000).

Another criticism was that NHA are not fully consistent with the WHO definition of the health system (McKee 2001). The reported NHA data concentrate mainly on personal medical and non-personal health-services expenditure. Intersectoral actions and the production of resources, which are emphasized in WHR 2000 as integral parts of the health system, are not always included. The figure for health expenditure on all the activities of intersectoral actions in promoting health "*is nowhere to be found in any national health accounts*" (McKee 2001). Therefore, using NHA data to measure health-system resources is misleading since it forces a comparison of outcomes with health *services* inputs rather than with health *system* inputs.

Methods

A range of criticism focused on the non-comparability of expenditure categories and definitions. Different agencies classify expenditures differently, and do not have the same definition for functions and services (Ministry of Health, Lebanon 2000). Comparability is difficult because of diverse national standards, in addition to differing concepts of boundaries, dimensions, and classification systems. Furthermore, standardized regional

reporting systems are lacking, and it is very difficult to achieve consensus by policy makers regarding the framework and content of NHA (WHO Regional Office for South-East Asia 2001).

Due to the important role played by these figures, and the questions regarding methodology and data sources, it was argued that future reporting needs to discuss explicitly levels of uncertainty for expenditure estimates. This is highlighted by the debates around WHR 2000 on the assessment of outcomes, inputs and efficiency with widely varying uncertainty intervals.

Data/Evidence/Sources

There is lack of comparability between the different data sets. Collecting information on the distribution of expenditures by function, and linking expenditures with utilization is difficult given the state of most countries' health financing data. The NHA estimates were questioned on the basis that the quality, validity and reliability of the data available in the countries is variable and frequently poor. They noted that discrepancies exist between expenditure data from different sources and questioned the process of reconciling these varying estimates.

Sources used to estimate health expenditures are not always complete. Sometimes they provide data only on the public sector while others concentrate on private expenditures. There is double-counting as well as gaps in coverage. Estimations of private spending were a particular subject of such criticism. The quality and reliability of such estimates remains uncertain because of incomplete coverage, unrepresentative surveys, and the likelihood of double counting expenditures (WHO Regional Office for South-East Asia 2001). For example, some commentators argued that reliable estimates of out-of-pocket expenditure were unavailable in up to 75% of countries (WHO Regional Office for South-East Asia 2001). Development of better methods to estimate private spending were recommended.

Some countries disagreed with the estimates of health expenditure reported in WHR 2000, on account of the data being outdated, the source of data being insufficient, and methods applied.

Some countries also disagreed with estimates of exchange rates (official and/or PPP), and the sources of PPP exchange rates used to convert local currency units into international dollars were questioned.

Countries argued that WHO had a responsibility to provide necessary technical assistance to prepare or improve NHA data. They argued that WHO's data collection efforts should more closely integrate with capacity-building in the countries. Regional activities may be needed to ground NHA in countries and to build better evidence for policy.

Specific problems were cited in WHO's estimation of external resources applied to health in WHR 2001. It was noted that there are large discrepancies between NHA surveys and data on public expenditure on health reported in national and international publications ("The Health Dime"). The problem cannot be ignored because in some cases external resources account for a third or more of total resources spent on health. Some of the limitations include:

- Disadvantages of the existing registration system: data reported under the IMF classification of expenditure by function appear in many countries to be institutional rather than functional, and omit expenditure on health-enhancing interventions by ministries other than the Ministry of Health. They frequently report planned rather than actual outlays.
- The multiple channels through which external resources flow into a country are not always reported.
- There are problems in tracing and valuing in-kind flows. For instance, donations of equipment, stocks of vaccines, and medicines are not always reported or given a value.
- Private grants and loans are not registered.

Overall, the importance of explaining the findings and checking their validity was emphasized.

3. WHO responses and proposals

Concepts

WHO maintained that the concept used in NHA is close to the definition of the health system and argued that much of what gets reported depends on the availability of data. WHO recognizes that statistical imperfections exist and in order to address the criticism of inconsistencies in the definition of the health system, the new framework for NHA incorporates further breakdowns of expenditure.¹

WHR 2001 introduced two additional categories of expenditures, viz. external resources for health as a percentage of public expenditure on health, and private insurance and other pooled expenditure. A further enlarged dataset is anticipated for WHR 2002 which will include a broader time-frame (1995-1999). Also, trends for 1970-2000 are in the process of estimation (with completion planned after 2002). WHO also proposes the introduction of further breakdowns of expenditure to the extent possible:

- (i) by type of function or provider (inpatient, outpatient, long-term care);
- (ii) by type of resource (capital, labour, consumables);

¹ These will appear in the NHA *Producer's Guide* currently under preparation. It is co-funded by the World Bank, WHO and USAID, and is being jointly prepared by those agencies and a team from the Harvard School of Public Health.

(iii) by type of provider.

In order to improve cross-country consistency and provide technical assistance, WHO is in the process of preparing a *Producer's Guide* to offer a common framework for NHA. WHO has also initiated a capacity-building programme at regional and national levels (Africa and Eastern Europe) with other activities also to respond to demands from the Americas, the East Mediterranean, and Asia. WHO is collaborating with other international organizations on developing the methodology for NHAs and on technical training.

Methods

A prototype NHA has been initiated because of large gaps in data (particularly for the private sector), non-availability of required disaggregations, cash- and not accrual-data. Boundaries reflect different degrees of the private-public mix ("in search of commonality").

Data/Evidence/Sources

WHO has redoubled its efforts to interact with national authorities and other international agencies in a continuing process of updating estimates. WHO has specifically initiated a consultation process with countries in order to validate the information compiled. For example, estimates for 1998 and the revisions for 1997 were sent to countries for comment, and the changes agreed with them were reported in WHR 2001.

Since WHR 2000, WHO is working on a method to improve the calculation of purchasing power parities, and is collaborating with the World Bank for the next round of the International Comparisons Project.

To deal with the problems identified in estimating external resources, WHO suggests that:

- Data should be collected from both the external agencies and the recipient countries (through the questionnaire listing input categories using the major functional classifications);
- The value of in-kind transfers should be calculated at replacement cost;
- The resources allocated only by the external agency directly to the population and health institutions – as cash or in-kind – should be counted.

4. SPRG comments and recommendations

In the new framework of the NHA, WHO intends to incorporate the main indicators concerned with inputs examination for the purposes of HSPA. This

is evident from an examination of the modified template for NHA, which is closer to the classifications in the *Producer's Guide*. The purpose is to document (through the NHA) the problem of existing imbalances between different types of resources. However, NHA provide only one-year expenditures, whereas for the purposes of investment planning the stock of available capital is needed – which incorporates past investment decisions too. Preparing a time-series of NHA will indicate the changing demands and supplies of the health system over time.

NHA are based on accountancy principles which do not readily offer estimates of data uncertainty. This may conflict with the statistical methods used in other aspects of HSPA. There is a problem with the availability and accuracy of the data being presented. No explanation is available on the methods used to estimate missing data (when the nominal values are not available). There is little or no information on the approach that is applied to choose among different values reported by different sources, and to decide on the level of expenditure when no information exists (e.g., expert opinion, imputed from international patterns, some sort of average, etc). WHO should consider developing methodologies for indicating uncertainty in the financial data.

WHO is attempting to enter into a dialogue with countries for continuous improvement of NHA. However, more transparency is needed. WHO is consulting countries to establish whether the series are plausible and to fill gaps. Basic macro-variables – such as general government total expenditure – should be reviewed, and information to fill missing data should be obtained at the national level. WHO has to specify the procedures for examining the accuracy in the NHA data.

It is extremely important that WHO work towards the standardization of classifications. The classifications applied are usually country-specific, adopting the OECD International Classification of Health Expenditures' system to the country's own situation. Also, the number and scope of breakdowns presented are different, depending on the data available.

Apart from standardizing classifications, the definitions of categories have to be uniform. Different items that are similarly labelled may be included in health-care costs. SPRG recommends that in order to achieve uniformity among expenditures labelled identically and to ensure comparability across countries, WHO should clarify the content of each category incorporated into the NHA template. Explicit definitions are needed. Clarification is also needed to ensure the consistency of NHA with the definition of the health system, so as to be able to identify the inputs to the health system from which the outcomes are evaluated.

The weak basis of PPP estimates can be highly influential on a country's measured performance. However, it remains a preferable alternative to

conversion using official exchange rates. We would encourage WHO to continue actively exploring improved PPP estimates.

Additional household surveys are often undertaken to elicit private out-of-pocket expenditures. Unfortunately, attention is not always paid to capital investment in private facilities, and to the health expenditure incurred by a country's citizens when they are abroad. Another problem is health spending by citizens of neighboring countries (especially living in border areas) who work and pay health insurance premiums in one country but live and use health services in another. WHO should determine whether such spending should be included.

In terms of basic accounting principles, income and expenditure must be balanced in the NHA. The value of resources funded and spent in a health system should be equal to the sum of the value of all goods and services delivered (Poullier, Hernandez, and Kawabata 2001). However, expenditures (consumption and investment) are not necessarily equal to the sum of the value of goods and services provided. The amount of investment in resource generation (for training and construction) is usually different from the cost of factors employed, for the following reasons:

- migration and unemployment of human resources in the health system;
- unfinished construction;
- buildings are not depreciated (no consumption of fixed capital is taken into account) until they are finished.

WHO should examine further the most appropriate treatments of these complications.

There is an extremely important role for WHO to play in *capacity-building* of countries.

- We propose that WHO publish the *Producer's Guide* as soon as possible, in order to increase capacity-strengthening in countries;
- WHO should work for greater harmonization across international agencies;
- WHO should strengthen support to the NHA regional networks and find ways of improving interaction among users of NHA. This will also help in capacity-building.
- For countries with limited capacity, the measurement process for health expenditure flows should be incorporated into the regular UN System of National Accounts.

5. References

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