Methodology for the update of the global health expenditure database 2020–2022

Technical note
Methodology for the update of the global health expenditure database 2020-2022: technical note

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1. Introduction of the Global Health Expenditure Database

The WHO Global Health Expenditure Database (GHED) serves as a global reference for health expenditure information in WHO Member States. GHED is the largest database that provides internationally comparable expenditure data for almost 190 countries. Data are collected from Member States or estimated by WHO in case of gaps. They extend back to the year 2000 and follow the System of Health Accounts 2011 (SHA 2011). GHED is updated annually, with a two-year lag \((t - 2)\).\(^1\) The database is open to the public and can be found on the WHO website through the official link: apps.who.int/nha/database (Fig. 1).

GHED consists of three core sections: Data Explorer, Visualisations and Documentation Centre.

Figure 1 The GHED interface, 2022

Health expenditure data can be found in the database in the Data Explorer section, which consists of three main sets of data. The second and most comprehensive of the three describes health expenditure data relative to the health system financing structures of countries. This includes current health expenditure distributed by various financing arrangements (listed by health financing schemes (HF) classification) and the revenues that feed into these schemes (listed by health financing schemes revenue sources (FS) classification). The data also show the use of resources by type of services (using the health

\(^1\) For countries in which the fiscal year begins after 30 June, expenditure data are allocated to the later calendar year. For example, fiscal year 2017–2018 is published as data for 2018.
care function (HC) classification), main disease categories (DIS), spending on children less than five years old (AGE), and available information on investments in the health care system (capital expenditure (HK)).

Macroeconomic data for countries, such as gross domestic product (GDP), exchange rates, price indexes and so on, can be found in the third part of the Data Explorer section. Several indicators are provided to facilitate rapid interpretation of the data, and can be found in the first part of Data Explorer section, listed under Indicators. A separate file, Indicator List (2022), contains this list with an explanation of what the indicators aim to show and how they were calculated, and can be found in GHED Documentation Centre (1).

Health expenditure and macroeconomic data series can be displayed on the GHED in various units:

- in million NCU\(^2\)
- in million current US$
- in million current PPP\(^3\)
- in current NCU per capita
- in current US$ per capita
- in current PPP per capita
- % gross domestic product (GDP)
- % general government expenditure (GGE)
- % current health expenditure (CHE)
- in million constant (2020) NCU
- in million constant (2020) US$
- in million constant (2020) PPP
- in constant (2020) NCU per capita
- in constant (2020) US$ per capita
- in constant (2020) PPP per capita.

By default, values are displayed in millions of NCU.

The user interface of the database is available in English. The data tables and their respective metadata can be viewed in a web browser, and also downloaded in several file formats (Excel, RTF, PDF). The complete database can be downloaded in Excel format from the Data Explorer landing page.

The Visualisations section presents a dashboard of country profiles.

The Documentation Centre includes useful information, including published reports; health accounts methodologies and guidelines; the list of published indicators; country notes and

\(^2\) National currency unit  
\(^3\) Purchasing power parity
so on.

Refer to the GHED as follows: *WHO Global Health Expenditure Database (GHED)*.

The current document describes the process of updating the 2022 GHED.

### 2. GHED update process

#### 2.1 Data collection process

Because the level of reporting of health accounts varies between countries, WHO uses several approaches to compile the health expenditure data. Mainly, WHO uses four types of templates for data collection. The first template, called Mini, uses one-dimensional Excel-based tables and captures data trends from 2000 and metadata describing data sources, methods of calculations and changes done since the last update. This template is often used to update the time series from countries that cannot update them using the preferred methods (described below).

WHO recommends the use of the Health Accounts Production Tool (HAPT)\(^4\), because it enables the study of multiple crossed dimensions following the SHA 2011 methodology. It also simplifies automatic mapping verification and the reuse of coding in subsequent studies.

Another template is a questionnaire created by three international organizations – the Organisation for Economic Co-operation and Development (OECD), WHO and Eurostat – called the Joint Health Accounts Questionnaire (JHAQ). The questionnaire consists of two parts: a data questionnaire and a methodological questionnaire, both in Excel. The data questionnaire contains SHA 2011-based tables, each showing the cross of two classifications. Another file contains the methodological questionnaire, which helps consolidate data and serves as a check for data quality. It also provides an opportunity for commenting on data if necessary. These questionnaires in essence describe the country’s health financing system.

Countries that do not use the HAPT or JHAQ format are encouraged to complete the Health Accounts Questionnaire (HAQ), a template based on the JHAQ and adapted to reflect WHO’s information needs by adding additional tables (HC×FS and DIS×FS).\(^5\) The HAQ also consists of two parts: a data questionnaire and a methodological questionnaire. For consistency and data coherence, any revisions and submissions for years before the reference year should be done using the same HAPT tool or JHAQ and HAQ templates for each year of revision.

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\(^5\) Note that ‘×’ here refers to the intersection of categories in a cross table; for example, C.1 × DIS.1.9.2 means the intersection of HC.1 and DIS.192 in a HC × DIS cross table.
2.2 Consultation process

The annual data collection, validation and country consultation processes and schedule are listed in Table 1.

Table 1: The production, validation and publication of health expenditure data

<table>
<thead>
<tr>
<th>Time schedule</th>
<th>Country focal points</th>
<th>WHO (country, regional and headquarters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January–February</td>
<td>Nomination of official focal points</td>
<td>Preparation of templates and methods</td>
</tr>
<tr>
<td>March–June</td>
<td>Data collection phase</td>
<td>Intensive technical support to countries if needed (available all year round)</td>
</tr>
<tr>
<td>July–September</td>
<td>Technical review and revision with WHO, international experts and country experts</td>
<td>Data review and exchanges with countries to validate/improve quality of data; global, regional, and country-specific data review meetings</td>
</tr>
<tr>
<td>October</td>
<td>Final data validation by countries</td>
<td>Regional validation workshops as relevant</td>
</tr>
<tr>
<td>November</td>
<td></td>
<td>Final data review, quality checks, consultation with international experts. Analysis and preparation of reports</td>
</tr>
<tr>
<td>December</td>
<td></td>
<td>Data publication on the GHED. Release of reports</td>
</tr>
</tbody>
</table>

Note: countries reporting to WHO-OECD-EUROSTAT follow a JHAQ timeline.

In this process the country official health accounts focal points play an important role. They are requested to have the technical ability to provide and organize the data within the SHA 2011 framework and sufficient knowledge of the country’s health financing system and reforms to be able to inform the process from a policy perspective. In countries that already produce health accounts, the focal point is usually the technical leader of the health accounts team.

In addition, WHO actively collaborates with the OECD and Eurostat to collect, review and publish health expenditure information for states that are common to one or more of those organizations and WHO. WHO also involves experts from international institutions – such as the World Bank and the International Monetary Fund (IMF) – and international experts to reinforce the validation process used to verify the data before publication.

3. GHED update methods

The recommended data sources for health expenditure statistics are countries’ health accounts produced following the SHA 2011 methodology. When health accounts data are not available, health expenditure information should be collected from other key data sources or estimated using a standard process (described below). The aim of the process is to improve the consistency and comparability of health expenditure data across countries. Results of these estimations are discussed with country health accounts focal points or
ministries of health. Gaps and estimation methods used are identified and described in the metadata.

Some countries report data at a very highly aggregated level. This can be problematic, because, for example, government expenditure on health may include expenditure by governmental institutions and by social health insurance together. In this case, it is challenging to map expenditure into the required subcategories. This leads to significant data gaps, which WHO then must fill using estimates if it is to support the dissemination of time series of key indicators, such as domestic government expenditures on health (GGHE-D).

The data collection and estimation process follows three basic steps:

1. An analysis of the country’s health financing system is conducted to identify existing financing mechanisms and agents and map them according to the SHA 2011 methodology.

2. Sources of revenue and expenditure data are collected from institutions’ records, as comprehensively as possible.

3. Expenditure data are analysed to separate current and capital expenditure (reported separately). All expenditure on services provided should be tracked and all revenues related to this expenditure should be identified.

### 3.1 Estimation of health care financing schemes data

When data are not accessible either directly through country focal points or from national websites and reports, some indicators are estimated by WHO. The financing schemes (HF) classification is typically the starting point for updating series and estimating data to fill gaps. Estimates are derived using historical values, trends and extrapolations using macroeconomic data series. For example, macroeconomic general government expenditure series may be used for estimating missing data in government health expenditure series. Estimates should be confirmed as much as possible by using qualitative information such as whether schemes were maintained, or reforms that affected expenditures on health were implemented.

#### 3.1.1 Government schemes [HF.1.1]

Government schemes’ health expenditure includes health expenditures by ministries of health and by other ministries (for example, defence, correctional services, police, social affairs). Depending on the level of decentralization of the fiscal system, special attention may be needed to identify and remove double-counting of expenditures recorded at various administrative levels (for example, transfers to regional governments and regional governments’ expenditure on health). Typical revenues used for government health expenditure are government revenues from taxes and other sources, including foreign aid.

Data are collected from accessible and available detailed national records. When access is
not possible, country data for the last year are extrapolated with general government expenditure growth provided by international data sources such as the World Bank, IMF and UN.

3.1.2 Social health insurance schemes [HF.1.2.1]

Some countries have set up mandatory contributory health insurance schemes, such as social health insurance, which often represent a significant share of current health expenditure. Typically, insurance schemes publish annual financial reports in which information can be found on expenditures and revenues.

First, health insurance data should be checked for each of the different types of schemes as defined by SHA 2011. For example, social health insurance schemes may cover types of risks other than health, or may provide both compulsory and voluntary insurances. The main revenues to fund social health insurances are social insurance contributions (FS.3), which may be complemented with government transfers. These revenues can take the form of transfers and grants (FS.1.1) or transfers on behalf of specific groups (FS.1.2). Social health insurance schemes may mobilize additional income from their own financial investments (FS.6.2), and receive transfers from abroad that are distributed through the general government (FS.2).

**Box 1. Total revenues of health financing schemes (FS) should equal total expenditure of health financing schemes (HF)**

Revenues of schemes may be greater or smaller than the actual expenditure of the schemes. However, the SHA 2011 classification of revenues of financing schemes (FS) records the value of current health expenditure financed through specific revenues categories and not the value of the revenue itself.

If revenues are greater than expenditures, then the proportions from each financing source category are applied to the total expenditure value to estimate the value of each financing source. This safeguards the equality of revenues and expenditures.

If revenues are smaller than expenditures, then it is important to study the data to understand if there may be some government transfers involved (for example, in paying back debts), or if savings from previous years are being used to fund current expenditure.

3.1.3 Out-of-pocket payments schemes [HF.3]

Direct out-of-pocket (OOP) payment by households remains, in many countries, an important part of health expenditure. Because relying on OOP can lead to reduced access to services – poorer households may not be able to obtain needed care – it is essential to estimate OOP expenditure correctly. Depending on the availability of data, OOP payments may be estimated from health facility surveys, household surveys, and other sources of information, such as national accounts reports and claim data from health insurance (for households’ co-payments). WHO and OECD have released guidelines (2), which include criteria for selecting data sources and using the data. The main problems of relying solely on surveys are described and an integrative approach is recommended. Ideally, data on
supply and consumption are compared for verification. Since such data are not always available, it is recommended to use national accounts data and data linked to household and private spending, categorized using the international classification of individual consumption by purpose.

3.1.4 Voluntary health insurance (HF.2.1) and enterprise schemes (HF.2.3)

Voluntary health insurance schemes are present in nearly all countries. However, they usually play a relatively small role in health care financing. Data from national authorities should be used – for example, from bodies responsible for regulating private insurance institutions – and its alignment to the SHA 2011 framework during a health account estimation exercise is preferred. Voluntary health insurance is usually sourced by voluntary prepayment (FS.5) and income from other economic activities, such as revenues from corporations (FS.6.2). In some countries, governments also support such arrangements through subsidies to premiums or by tax credits (FS.1.3).

Enterprise schemes (HF.2.3) are financing arrangements established by employers for the benefit of their employees. Such voluntary schemes may include preventive and wellness activities. Some include whole-health service delivery (for example, large mines may organize services from primary to palliative care for their workers and their families). They are predominantly funded by other revenues from corporations (FS.6.2).

3.2 Estimation of revenues of health care financing schemes

Estimation of revenues of financing schemes (FS classification) is based on information on the health care system and its financing mechanisms, reports, and data available from country, other literature, direct engagement with the health accounts focal point, and consultation with international experts. In many countries, there will be a direct one-to-one relationship between the FS and HF classifications. For example, revenues for households OOP (HF.3) are financed from other revenues from households (FS.6.1), and revenues for enterprise financing schemes (HF.2.3) are from other revenues from corporations (FS.6.2). But frequently, schemes may have more than one revenue source; for example, government schemes may be funded by internal transfers and by transfers of foreign origin. It is therefore important to research how schemes are funded. For example, an annual report on the revenues of a social health insurance fund can be used to estimate the shares of government transfers (FS.1.1, FS.1.2) and social insurance contributions components (FS.3.1, FS.3.2 and so on).

If such information is not available, qualitative information on the structure of the revenues of each scheme can be used. It could be assumed that the structure of revenues for a scheme remains stable across the years, and so if the proportions from each source are known for one year, they can be applied to other years. Information from years close to the year with missing data should be weighted more heavily when estimating the relative share of revenues compared with data from more distant years. The sum of subcomponents should add up to 100%. For some schemes, some generic equations might hold true, but attention must be given to the specifics in each country.
The financing arrangements can be more complex, so when preparing the data by FS classification, knowledge of the health care financing system is required, as well as access to data on the revenue sources of various financing schemes and their agents.

### 3.3 Data about external funding of health

Funding from donors represents a significant source of health expenditures in low income countries. Donors typically fund government schemes’ expenditures (HF.1.1×FS.2 or FS7) and non-profit institutions, including nongovernmental institutions and international development agencies (HF.2.2×FS.7). External aid includes grants, concessional loans and aid in kind from bilateral, multilateral or private foundations, such as the Bill & Melinda Gates Foundation. Commercial loans are not considered as external funding because they are repaid from domestic budgets in the future. The inclusion of external funds is defined by health care functions – for example, medical education and research and development are not counted. Spending on social determinants of health is also excluded. Furthermore, capital and current spending financed by external funds are reported separately.

Health accounts are the preferred source of information for tracking externally funded health expenditure. If this information is not complete, other data sources, such as surveys and reports from donors, governments, non-profit institutions and health care providers should be used for producing the best estimate possible. The Creditor Reporting System (CRS) database of the OECD Development Assistance Committee (DAC) is also one of main secondary data sources for estimation of external funding of health. The OECD CRS database reports disbursements by sector and purpose, but not the actual expenditure of aid resources in recipient countries. For more detailed information on how WHO uses the OECD CRS database for estimation of externally funded health expenditure in Member States, see Annex 1.

Rest of the world financing schemes (HF.4) capture expenditure paid by nonresident schemes – such as nonresident health insurances covering citizens residing in another country – and by external actors working in a country for a short period of time (less than 6 months) – for example, in situations of emergency. Financing sources for such revenues are usually direct foreign transfers (FS.7). This category is primarily designed to reflect external funds flowing to domestic health care. HF.4 schemes are very rare and used only in quite specific cases.

### 3.4 Data on expenditure by function

WHO publishes time series of expenditure by function, starting from 2016. The classification of functions refers to groups of health care goods and services consumed with a specific health purpose, such as curative or preventive care.

Current health expenditure is presented by function by categories and in total. Health expenditure by function is also further split between three groups of revenues of financing scheme (FS): domestic general government funding GGHE-D, externally funded expenditure (EXT), and private domestic funding (PVT-D), including households and other
domestic private sources.

GGHE-D refers to the domestic public sources, including transfers from domestic government revenue (allocated to health purposes) (FS.1) and social insurance contributions (FS.3). EXT comprises external aid including transfers distributed by the government of funds of foreign origin (FS.2) and direct foreign transfers (FS.7). PVT-D refers to private domestic sources, including unspecified and compulsory prepayment other than FS.3 (FS.4), voluntary prepayment (FS.5), other domestic revenues (FS.6) and unspecified revenues of health care financing schemes (FS.nec).

The data are collected and prepared from country health accounts. WHO ensures that the totals by functions are equal to the totals by other classifications, such as financing schemes, revenues and so on, before publishing them on the GHED. If there are inconsistencies, expenditures by function are proportionally adjusted by the total expenditure of financing source groups. As a result, data published on the GHED may slightly differ from country health accounts data.

WHO started estimating expenditure by health care function (HC) disaggregated by health financing revenue sources (FS) category in 2017. There are two methods of such estimation: scaling up from a previous year’s expenditure by function (HC) and revenue source (FS), and triangulation from health expenditure by function (HC) and financing schemes (HF) table and health expenditure by financing schemes and revenue sources (FS) table of the same year.

3.4.1 Scaling up from a previous year’s expenditure by health care function (HC) and revenue source (FS)

When data for the classification of health care functions crossed with revenues of health care financing schemes (HC×FS) are available for some year, but not for a later year, WHO may estimate the values for the missing year. This is done by scaling the growth of HC categories within a revenue source by the change in that revenue source from the previous year. To do this, WHO aggregates the revenue classification into four groups: government, external, out-of-pocket payment and other sources. For example, if a country had health care function (HC) data by funding source for 2017 but not for 2018 and overall government expenditure increased by 4.2% in this time, then all government-funded HC categories are scaled up by 4.2%. This method would also be used for the other three revenue groups.

In other words, whenever there is no data available for the year under consideration and the pattern of service delivery remained the same as in previous years, then an estimation of the function expenditure is generated by applying the function structure of each of the four FS groups of previous year to the FS groups of the estimated year.

\[ y_{i,t} = \frac{y_{i,t-1}}{y_{t-1}} \times y_{i,t} \]

Where:
\[ y_{i,t} \] – expenditure for function \( i \) in year \( t \)

\( i \) – function expenditure,

\( j \) – FS groups (GGHE-D, EXT, OOP and others)

\( t \) – estimated year.

GHED presents three FS groups: GGHE-D, EXT, and PVT-D (which is the sum of OOPs and others). For some countries, a later year’s expenditure data by function is derived from a previous year’s health accounts. The computation is similar to the adjustment described above. In these cases, it is assumed that the distribution of health functions in each funding source did not change from the base year to the later year. For example, data for 2019 expenditure by function are estimated by multiplying the series reported in 2018 by the growth rates of health funding source groups for 2018–2019. According to the availability of health accounts in countries, estimates for the year 2019 may be derived from studies of health accounts from 2016, 2017 or 2018. Health accounts studies of earlier years are not used to extrapolate current health expenditure by function from 2019 data.

Since health expenditure distribution across functions within each funding source could change drastically since 2020, the first year after the COVID-19 outbreak, and the scaling-up method assumes that health function distribution within each funding source stays constant from the base year to the later year, it is no longer reasonable to use such a method to estimate expenditure by health care function.

### 3.4.2 Triangulation from health expenditure by function (HC) and financing schemes (HF) cross table, and health expenditure by financing schemes (HF) and revenue sources (FS) cross table

In 2022, WHO started estimating health expenditure by health function (HC) crossed with financing revenue source for OECD and European Union countries because health expenditure by function (HC) and revenue source was not reported by these countries, since this cross is not requested by the JHAQ. For 2020, the table for health expenditure by health function (HC) and financing scheme (HF), and the table for health expenditure by financing schemes (HF) and revenue sources were reported through JHAQ. This estimation was done assuming that the revenue sources (FS) distributions in each financing scheme (HF) stay the same across health function categories (HC). After estimating the HC×FS cross, health expenditure by revenue was categorized into the three FS groups published on GHED: GGHE-D, EXT and PVT-D.

Since this estimation is rudimentary without a thorough investigation of how the revenue source in each financing scheme and health function category (HF×HC) could vary in a country, it is not used to replace actual reported data. Further, WHO did not explore the plausibility of estimating HC×FS through HC×HF and HF×FS with a different hypothesis: assuming that the health function (HC) distribution stayed the same within each financing scheme across each funding source. Users interested in exploring both hypotheses are
encouraged to investigate using cross table data from the OECD or Eurostat databases (3) (4).

### 3.4.3 Expenditure data on immunization programmes

Immunization programme expenditure is mapped under the health care function (HC) category HC.6.2. This aims to track programmes preventing the development of a disease, before or after exposure, using vaccines. It involves consumption in mass campaigns or in routine immunization programmes as well as individual consumption.¹⁶

Expenditure data on immunization programmes are released as a time series starting from 2016. They are provided by FS groups (GGHE-D, EXT and PVT-D).

### 3.5 Data on expenditure on primary health care

Primary health care expenditure (PHCE) indicators were published on the GHED for the first time in 2018 for 50 countries (data for 2016). Adequate financing is key to building a strong primary health care system. The following indicators were chosen as important measures of financing for primary health care (PHC) (5):

- Primary Health Care (PHC) Expenditure per Capita in US$
- Primary Health Care (PHC) Expenditure as % Current Health Expenditure (CHE)
- Domestic General Government Expenditure on PHC per Capita in US$
- Domestic General Government Expenditure on PHC as % GGHE-D
- Domestic General Government Expenditure on PHC as % PHC
- External Expenditure on PHC per Capita in US$
- External Expenditure on PHC as % EXT
- External Expenditure on PHC as % PHC
- PHC (government and donors) as % of GDP
- Domestic Private Expenditure on PHC per Capita in US$
- Domestic Private Expenditure on PHC as % PVT-D
- Domestic Private Expenditure on PHC as % PHC
- Expenditure on Immunization Programmes as % Current Health Expenditure (CHE)
- Domestic General Government Expenditure on Immunization Programmes as % of Domestic General Government Expenditure on Health (GGHE-D)
- External sources of funding on Immunization Programmes as % of External Health Expenditure (EXT)
- Expenditure on Vaccines as % Current Health Expenditure (CHE).

Since 2022, GHED also includes indicators measuring private expenditure on PHC:

- Private Expenditure on PHC per Capita in US$
- Private Expenditure PHC as % Private Expenditure

¹⁶ SHA 2011 methodology states that vaccines purchased independently at pharmacists should be mapped under HC.6.2, instead of under HC.5, as the purpose of the purchase of vaccines is known.
• Private Expenditure on PHC as % PHC Expenditure.

These indicators collectively provide a concise overview of the amounts spent on PHC, the priority given to PHCE, the origin of PHC funding (domestic general government, private and external), and the relative importance of each revenue source.

When PHCE is combined with information on inputs, activities and outcomes, it can also be a powerful analytical tool for better understanding the functioning of health systems and the performance of the PHC system within individual countries. For example, it can help show the extent to which first-contact services are provided in hospitals and lower-level facilities and whether they are accessible and effective in achieving policy goals.

The key to the creation of these financing indicators is how PHCE is defined. In this case, PHCE was defined following a global consultation process on how SHA 2011 methodology could be used to monitor PHCE, because SHA 2011 does not include readymade classifications and categories for PHC. This global PHCE measure includes the categories outlined in Box 3.

**Box 3. Global measure of primary health care expenditure**

- **General outpatient curative care (HC.1.3.1)**, such as visits to a general practitioner or nurse
- **Dental outpatient curative care (HC.1.3.2)**, such as visits for regular control and other oral treatment
- **Curative outpatient care not elsewhere classified (HC.1.3.nec)**
- **Home-based curative care (HC.1.4)**, such as home visits by a general practitioner or nurse
- **Outpatient (HC.3.3) and home-based (HC.3.4) long-term health care**
- **Preventive care (HC.6)**, such as immunization, health checkups, health education, disease detection, monitoring and emergency response programmes
- Part of medical goods provided outside health care services (80% of HC.5)
- Part of health system administration and governance (80% of HC.7)

The medical goods category under the health care function (HC) classification includes medicines purchased outside the inpatient and outpatient setting (in pharmacies and markets) or paid for separately from the consultation fee. The primary health care (PHC) component of medical goods includes only those for general outpatient use and self-prescribed medicine. It does not include medical goods for specialized outpatient and inpatient services. Following these criteria, and assuming most spending recorded for
medical goods is for PHC, 80% of medical goods spending was attributed to PHC spending under this global definition.

Governance functions are mainly related to the administration, development and implementation of policies, and to the administration of health financing. Policy development, implementation and coordination are population-based interventions in the broader public health scope and so are considered as PHC. According to this criterion, 80% of spending in the governance category is counted as PHC spending.

To reach a consensus on a working definition, WHO ran comparative and sensitivity analyses on a handful of working definitions that came out of the global consultations. These analyses were presented in a conference paper and discussed at the 40th PHC anniversary in Astana in October 2018, after which the working definition was finalized as presented above.

While best efforts were made to identify and include appropriate health care services classifications in the definition, it should be noted that SHA 2011 currently does not necessarily break expenditure down into a classification ideal for determining PHC-specific services, nor for distinguishing PHC services from other types of health care services.

For more information on the global PHCE measure and more detailed explanations, please refer to Measuring primary health care expenditure under SHA 2011 (December 2021) (6) and to the GHED Documentation Centre (7).

3.6 Data on expenditures by disease

WHO started publishing estimates of expenditure by disease and condition for the first time in 2017. Data published on the GHED in 2022 provide disease expenditure estimates for the years 2013 to 2020 for 64 countries. The disease spending estimates are submitted to WHO by Member States that have included this classification in their health accounts. The disease spending amounts cover the full range of factors provided for health services – drugs, supply and human resources – at both the service delivery point, where health services are produced and consumed, and centrally, where the system is administered and governed. Some line items are easy to identify in allocating spending amounts, and thus specific to a particular disease or condition – for example, spending on drugs such as insulin for diabetes, antiretrovirals for HIV/AIDS and the salaries of doctors and nurses working in a psychiatric hospital for mental health or those of midwives in labour and delivery wards for reproductive health. The detailed disease category list can be found in Annex 2. The disease spending categories released on the GHED are listed in Table 2.
Table 2 Disease categories published on the GHED

<table>
<thead>
<tr>
<th>Code</th>
<th>Classification of diseases/conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIS.1</td>
<td>Infectious and parasitic diseases</td>
</tr>
<tr>
<td>DIS.1.1</td>
<td>HIV/AIDS and other sexually transmitted diseases (STDs)</td>
</tr>
<tr>
<td>DIS.1.2</td>
<td>Tuberculosis (TB)</td>
</tr>
<tr>
<td>DIS.1.3</td>
<td>Malaria</td>
</tr>
<tr>
<td>DIS.1.6</td>
<td>Neglected tropical diseases (NTDs)</td>
</tr>
<tr>
<td>DIS.1.9.2</td>
<td>Disease from coronavirus SARS-CoV-2 (COVID-19)</td>
</tr>
<tr>
<td>DIS.2</td>
<td>Reproductive health</td>
</tr>
<tr>
<td>DIS.2.1</td>
<td>Maternal conditions</td>
</tr>
<tr>
<td>DIS.2.3</td>
<td>Contraceptive management (family planning)</td>
</tr>
<tr>
<td>DIS.3</td>
<td>Nutritional deficiencies</td>
</tr>
<tr>
<td>DIS.4</td>
<td>Noncommunicable diseases (NCDs)</td>
</tr>
<tr>
<td>DIS.5</td>
<td>Injuries</td>
</tr>
<tr>
<td>DIS.nec</td>
<td>Other and unspecified diseases/conditions (n.e.c.)</td>
</tr>
</tbody>
</table>

Each disease category is published by FS group and total. These FS groups provide a comprehensive view of the principal funding sources in a country. These groups refer to the aggregation of subcategories under the revenues of health care financing schemes (FS) classification, as follows:

\[ GGHE-D = FS.1 + FS.3 \]
\[ EXT = FS.2 + FS.7 \]
\[ PVT-D = FS.4 + FS.5 + FS.6 + FS.nec \]

The total disease expenditure is calculated as the sum of each specific disease by FS group (see page 11), as follows:

\[ y_{yi} = y_{GGHE-D} + y_{EXT} + y_{PVT-D} \]

Where:

\( y_{yi} \) – spending on disease category \( i \)

\( i \) – disease category

\( GGHE-D \) – expenditure form domestic public sources

\( EXT \) – expenditure from external aid

\( PVT-D \) – expenditure from domestic private sources.
There is an intermediate step for the calculation of PVT-D, in which OOP spending is calculated separately from the other private domestic sources; the two are thereafter summed to give PVT-D⁷.

The disease category DIS.6 – “non-disease specific” – was designed to capture the health system-related spending pertaining to the administrative and governance that cannot immediately be linked to a particular disease – for example, salaries of the personnel at the relevant ministry of health. Its use is uneven across countries, with some countries using it when the disease expenditure cannot directly be retrieved at the central level and others choosing to have the health spending incurred at the central level split by disease, similar to the process undertaken for the spending incurred in service delivery settings. For consistency – and to guarantee cross-country comparisons – WHO does not publish DIS.6 amounts on GHED. Before publication, WHO proportionally redistributes country-produced DIS.6 amounts, if any, using the known proportions of DIS.1–DIS.5 and DIS.nec (Annex 3).

Whenever there is no available data for the year under consideration and the pattern of service delivery remained the same as in previous years, then an estimation of the disease expenditure is generated by applying the disease structure of each of the four FS groups of previous years to the FS groups of the estimated year.

\[ y_{i,t} = \frac{y_{i,i,t-1}}{y_{i,t-1}} \times y_{i,t,t} \]

Where:

- \( y_{i,t} \) – expenditure for disease category \( i \) in year \( t \)
- \( i \) – disease category
- \( j \) – FS groups (GGHE-D, EXT, OOPs and others)
- \( t \) – year of estimate.

### 3.7 Data on expenditure on COVID-19

From 2021, WHO, OECD and Eurostat have jointly issued methodological guidance and started collecting data on health expenditure on COVID-19, using a number of special memorandum items (8) (Table 3). From 2022, these series for current health expenditure are published on GHED. The use of these memorandum items is recommended in the context of the COVID-19 pandemic, at least for countries which do not report the classification of diseases and conditions (DIS), in which COVID-19 is reported as DIS.1.9.2, as an outbreak that is declared as a Public Health Emergency of International Concern.

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⁷ GHED presents three FS groups: GGHE-D, EXT, and PVT-D (which is the sum of OOPs and others).
Table 3 Spending memorandum items related to COVID-19 in JHAQ, HAQ and HAPT

<table>
<thead>
<tr>
<th>Code</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC.COV</td>
<td>Special reporting items to track COVID-19 spending within current health expenditure:</td>
</tr>
<tr>
<td>HC.COV.1</td>
<td>COVID-19-related treatments</td>
</tr>
<tr>
<td>HC.COV.2</td>
<td>COVID-19 testing and contact tracing</td>
</tr>
<tr>
<td>HC.COV.3</td>
<td>Vaccination against SARS-CoV-2</td>
</tr>
<tr>
<td>HC.COV.4</td>
<td>COVID-19 medical goods (PPE for final use, drugs)</td>
</tr>
<tr>
<td>HC.COV.5</td>
<td>Other COVID-19-related health spending (n.e.c.)</td>
</tr>
</tbody>
</table>

The first five items (HC.COV.1–5) refer to reporting items in the sense that these costs are distributed across the different functions within the boundary of current health expenditure. The sum of these five items can be interpreted as total COVID-19 spending within the boundary of current health expenditure. Therefore, in principle, HC.COV (sum of HC.COV.1, HC.COV.2, HC.COV.3, HC.COV.4 and HC.COV.5) is equal to DIS.1.9.2. Following this equivalence, WHO is estimating HC.COV items for countries reporting COVID-19 spending under the DIS classification (DIS.1.9.2), using the HC×DIS table (Table 4), which allows for health spending on COVID-19 to be compared between countries reporting only HC.COV items and countries reporting the complete disaggregation of spending by diseases and conditions (DIS).
## Table 4 Estimation of COVID-19 memorandum items in GHED for countries reporting only DIS.1.9.2

<table>
<thead>
<tr>
<th>COVID-19 memorandum item</th>
<th>Included health care functions (HC) for HC.COV estimation</th>
</tr>
</thead>
</table>
| **HC.COV.1** COVID-19-related treatment | • HC.1×DIS.1.9.2 (including all HC.1 subcategories)  
  • HC.2×DIS.1.9.2 (including all HC.2 subcategories)  
  • HC.3×DIS.1.9.2 (including all HC.3 subcategories)  
  • HC.4.3×DIS.1.9.2 |
| **HC.COV.2** COVID-19 testing and contact tracing | • HC.4.1×DIS.1.9.2  
  • HC.6.3×DIS.1.9.2 (this estimation does not capture testing recorded along with treatment activities under HC.1–3 and auto-tests purchased from retailers under HC.5.1.3) |
| **HC.COV.3** Vaccination against SARS-CoV-2 | • HC.6.2×DIS.1.9.2 (this estimation does not capture spending related to COVID-19 immunization captured under HC.6.1, HC.6.5 and HC.7.1) |
| **HC.COV.4** COVID-19 medical goods | • HC.5×DIS.1.9.2 (including all HC.5 subcategories) |
| **HC.COV.5** Other COVID-19 health spending (n.e.c.) | • HC.4.2×DIS.1.9.2  
  • HC.4.nec×DIS.1.9.2  
  • HC.6.1×DIS.1.9.2  
  • HC.6.4×DIS.1.9.2  
  • HC.6.5×DIS.1.9.2  
  • HC.6.6×DIS.1.9.2  
  • HC.6.nec×DIS.1.9.2  
  • HC.7×DIS.1.9.2 (including all HC.7 subcategories)  
  • HC.9×DIS.1.9.2 |

HC.COV memorandum items are also published, when available, by groups of revenues of financing scheme: GGHE-D, external funding, and private domestic funding (PVT-D, including households and other domestic private sources). It should be noted that data on HC.COV items provided by countries are not always comprehensive in terms of financing schemes/sources and activities reported. For most countries, it is limited to government spending; it is recommended to look at the metadata associated with the values (that is, comments) to have a better understanding of the scope of the spending reported in HC.COV for each country.

Further details and technical guidance on mapping activities related to COVID-19 and SHA 2011 and special memorandum items are in a separated technical note, available in the GHED Documentation Centre (8).

### 3.8 Data on expenditure on vaccines

WHO has started publishing estimates of vaccines expenditure for the first time in 2022 for a series starting in year 2016. The vaccine spending estimates are submitted by Member States that have included the factor of provision classification in their health accounts’ production. The factor of provision are the factor inputs – salaries, commodities and so on – used by providers to produce the goods and services consumed or to undertake the
activities conducted in the system (Table 5).

Table 5. Factor of provision main categories, with vaccines as a subcategory of pharmaceuticals

<table>
<thead>
<tr>
<th>Code</th>
<th>Categories of the factor of provision classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP.1</td>
<td>Compensation of employees</td>
</tr>
<tr>
<td>FP.2</td>
<td>Self-employed professional remuneration</td>
</tr>
<tr>
<td>FP.3</td>
<td>Materials and services used</td>
</tr>
<tr>
<td>FP.3.2</td>
<td>Health care goods</td>
</tr>
<tr>
<td>FP.3.2.1</td>
<td>Pharmaceuticals</td>
</tr>
<tr>
<td>FP.3.2.1.4</td>
<td>Vaccines</td>
</tr>
<tr>
<td>FP.3.2.2</td>
<td>Other health care goods</td>
</tr>
<tr>
<td>FP.3.3</td>
<td>Non-health care services</td>
</tr>
<tr>
<td>FP.3.4</td>
<td>Non-health care goods</td>
</tr>
<tr>
<td>FP.3.nec</td>
<td>Other materials and services used (n.e.c.)</td>
</tr>
<tr>
<td>FP.4</td>
<td>Consumption of fixed capital</td>
</tr>
<tr>
<td>FP.5</td>
<td>Other items of spending on inputs</td>
</tr>
<tr>
<td>FP.nec</td>
<td>Unspecified factors of health care provision (n.e.c.)</td>
</tr>
</tbody>
</table>

Vaccine expenditure is published by FS group (GGHE-D, EXT and PVT-D), as explained above.

WHO does not provide estimations for vaccine expenditures if they are missing.

3.9 Data on expenditure by age

The health expenditure on children under 5 years old (AGE.1) is a subcategory of the age classification (AGE) which is used to assess the consumption of health care goods and services by age group.

The expenditure data on children under 5 years old is published for a series starting from year 2016, in cases in which AGE classification is included in countries health accounts.

The health expenditure on children under 5 years old is published by FS group (GGHE-D, EXT and PVT-D) and total. The latter is calculated as the sum of AGE.1 by FS group, as follows:

$$ y_y = y_y^{GGHE-D} + y_y^{EXT} + y_y^{PVT-D} $$

Where:

$y_i$ – expenditure for age group $i$ (AGE.1 in this case)

$i$ – AGE.1

$GGHE-D$ – expenditure from domestic public sources
EXT – expenditure from external aid

PVT-D – expenditure from domestic private sources.

The estimation of the expenditure on AGE.1 is conducted by applying its share over each FS group of the latest year available to each FS group of the estimated year, as follows:

\[ y_{ji,t} = \frac{y_{ji,t-1}}{y_{ji,t-1}} \times y_{ji,t-1} \]

Where:

\( y_j \) – expenditure on AGE.1

\( j \) – FS groups (GGHE-D, EXT, OOP and others)

\( t \) – estimated year.

3.10 Data on expenditure with 1-year lag (\( t - 1 \))

From 2022, WHO is publishing on GHED health expenditure data with 1-year lag (\( t - 1 \)) (that is, reference year 2021, data updated in 2022) for countries that provided these data.

For the first publication of \( t - 1 \) data, data for the year 2021 were published for 20 countries; for half of these countries, data were available only by financing scheme categories (FS). In general, \( t - 1 \) data are preliminary estimates and are provided by the countries through JHAQ, HAQ or HAPT.

WHO does not estimate or project \( t - 1 \) data for countries. In addition, not all required classifications and categories are reported by the countries: \( t - 1 \) data are reported for countries with available data at least for health care financing schemes (HF). In cases in which countries provided health expenditure data for other SHA 2011 classifications (FS, HC, HK, etc.), these are also published on GHED. Only the indicators associated with available data points are reported.

4. Quality control and data validation

Quality checks and data validation are inherent parts of the production of health accounts estimates and should be performed by health accounts teams before the data are submitted to WHO. Quality checks can be applied at various stages of the process, such as during the collection of data, when uploading data from the original source to HAPT (in the case of countries that use the tool) or after the mapping of data by SHA 2011 classifications has been done.

Once the data have been submitted, the WHO health accounts team performs quality checks to ensure it complies with SHA 2011 and statistical rules. When outstanding changes are observed for categories or crosses, countries are asked if the changes respond to changes in health policy or system, or to methodological changes in the production of
country health accounts (for example, the availability of new data sources or application of different estimation methods). As part of this validation process, the country teams might need to revise the submitted data and perform quality improvements, both in the data and in the metadata reported to WHO.

The main types of quality checks are negative values indication, consistency check (for example, comparing totals from different classifications and checking consistency of subtotals with totals), atypical entries checks (values reported in crosses of categories, where they generally may not intersect; see Annex 4), revisions of time consistency (time trends and growth rates), and checking of potential compilation issues (for example, missing or partially missing values), differences from SHA2011 definitions, or over- and underestimates.

Data validation should be conducted at national, regional and global levels to achieve consistency and improve quality of the health expenditures estimates. Validation at national and regional levels also includes approval by national authorities for the publication of the health accounts data.

5. Macroeconomic data and other additional data sources

Health expenditure indicators such as current health expenditure as a share of GDP and the prioritization of health in government spending (general government health expenditure as a share of general government expenditure) are central to health financing evaluation and rely on macroeconomic data. In the absence of timely consolidated revenue and health accounts data produced by country, macroeconomic data are used to estimate components of health expenditure such as out-of-pocket expenditure.

Seven macroeconomic series used on the GHED are:

- **Gross domestic product (GDP)** is a basic measure of the overall size of a country’s economy. From the expenditure perspective, it includes government and private final consumption, investment, and the balance of trade (exports minus imports).
- **General government expenditure (GGE)** is a measure of the total spending of a country’s government. It includes the total expense and the net acquisition of nonfinancial assets of all public entities (including central, state and local government) except public enterprises, as well as social transfers such as pensions and unemployment benefits.
- **Private final consumption (PFC)** is a component of GDP and is the value of all goods and services, including durable products, consumed by resident households and nonprofit institutions serving households – for example, nongovernmental organizations.
- **Exchange rate (XRT)** is the value of a national currency in terms of another currency, (US dollars in GHED). Given that exchange rates can fluctuate significantly over time, an annual average is used for constructing indicators.
• **Purchasing power parity (PPP)** is a conversion rate that expresses the value of a currency in terms of its ability to purchase the same “basket” of goods and services in different countries. PPP values capture differences in costs of living in different countries and are an alternative to exchange rates.

• **GDP deflator (GDPD)** captures price changes for a country’s economy as a whole and is used to convert expenditure series from nominal to constant prices, which allows times series to reflect real changes in expenditure over time. By default, constant values in GHED are reported last-reported-year prices.

• **Population (POP)** is the number of people in a country, area, or region as of 1 July of the year. Population values allow health expenditure to be considered in per capita terms, which facilitates the comparison of countries of different populations.

The detailed selection process of macroeconomic indicators is described in a separate document (9). For OECD and Eurostat Member States, WHO uses the same macroeconomic data as these organizations. For other countries, preferred data sources are detailed in Table 6.

**Table 6 Preferred data sources for macroeconomic indicators in non-OECD/EU countries**

<table>
<thead>
<tr>
<th>Macroeconomic data series</th>
<th>Preferred data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>Gross domestic product</td>
</tr>
<tr>
<td>GGE</td>
<td>General government expenditure</td>
</tr>
<tr>
<td>PFC</td>
<td>Private final consumption</td>
</tr>
<tr>
<td>XRT</td>
<td>Exchange rate</td>
</tr>
<tr>
<td>PPP</td>
<td>Purchasing power parity rate</td>
</tr>
<tr>
<td>GDPD</td>
<td>GDP deflator</td>
</tr>
<tr>
<td>POP</td>
<td>Population</td>
</tr>
</tbody>
</table>

IFS = International Financial Statistics; WEO = World Economic Outlook

The macroeconomic data series are considered together, which is especially important for the strongly related values of GDP, PFC and GDPD. In situations in which the preferred data source does not exist for a particular country or when certain data points in the time series are unavailable, further country-specific analysis can help identify an appropriate alternative – perhaps use of other sources or the extrapolation from the most recent year using the growth of the same series from another source.

In the case of unavailability of data for PPP rate for country or year, the rate is extrapolated by WHO using the GDPD method:
\[ PPPP_{A}^{t} = \frac{PPPPP_{A}^{t-1} \times (GGGPP_{A}^{t} + GGGPP_{A}^{t-1})}{1 \times (GGGPP_{A}^{t} - GGGPP_{A}^{t-1})} \]

Where \( PPPP_{A}^{t} \) is the extrapolated PPP rate for country \( A \) and year \( t \), estimated using GDP of country \( A \) \( (GGGPP_{A}^{t}) \) for years \( t \) and \( t - 1 \) and GDP of the reference country \( (GGGPP_{AA}^{t}) \) for the years \( t \) and \( t - 1 \).

In addition to the macroeconomic variables, each country in GHED is classified according to World Bank income groups (low, lower-middle, upper-middle, high). Income groups are defined based on 2020 data and calculated using the World Bank Atlas method: low income countries are defined as those with a gross national income (GNI) per capita of US$ 1085 or less in 2020; lower-middle income countries are those with a GNI per capita between US$ 1086 and US$ 4255; upper-middle income countries are those with a GNI per capita between US$ 4256 and US$ 13205; high income countries are those with a GNI per capita of US$ 13206 or more.

6. Metadata and data descriptions

One of the key steps in conducting health accounts is to analyse and describe the entire country’s health care system. This process should help data producers to correctly map their national health care financing system using the international definitions and to identify the potential data sources.

The WHO health accounts team compiles the methodological questionnaires provided by countries, along with any additional explanations resulting from the validation process, and produces the metadata to be published along with the data.

Each data point has metadata that gives the data source, whether it was estimated, and the methods of estimation used (Annex 5). Data Type indicates whether the variable was estimated, documented or partially documented. A data point is Documented when it is reported by country health accounts teams; it is Partially documented when data are estimated using one or several documents that directly refer to the variable and its year; and it is Estimated when a county does not report health expenditure data and the WHO health accounts team estimates it based on available information (by one of the methods mentioned in this document). The Comments attribute of the metadata section provides further details on the data point.

There are some symbols used on GHED. If one type of expenditure does not occur, then it is represented by “0” (zero) on GHED – for example, if there is no compulsory contributory health insurance scheme (HF.1.2) in a country, which is equivalent to “does not apply”.

Totals (FS, HF, HC, DIS) represent current health expenditure indicators. However, sometimes totals differ from sums of the components on GHED due small rounding issues. Rounding also may lead to inequality among totals of different classifications. In addition, if there are missing categories, the breakdown of categories in this group is not always
equal to the totality.

On GHED, absolute values of expenditures are by default expressed in nominal terms (current prices) and in millions of each national currency. For some indicators expressed in US dollars, the annual average exchange rates for the year are used.

Country Notes, a supplementary document published on the GHED Documentation Centre (7), contains additional information about country data. Under Footnotes, users can find noteworthy information about the country during the entire period for which time series are presented. Under Release Notes, there is information about the country health expenditure data – specifically, updates and revisions done since the previous year GHED update, including the latest year of the series (t – 1).
7. References


8. Annexes

Annex 1 - Using the OECD CRS database to estimate externally funded health expenditure

When there are no national data on externally funded health expenditure, WHO typically uses the OECD Development Assistance Committee CRS database to estimate aid to health consistently across countries. The data are accessible from [https://stats.oecd.org](https://stats.oecd.org) (Development/Credit Reporting System data). These estimates are only a proxy for externally funded health expenditure and should be taken with caution since they refer to disbursed funds and include disbursements for current expenditure and for capital investments.

Type of flow

The OECD CRS database classifies aid into three flows – official development assistance (ODA), other official flows and private development finance. All are included when estimating externally funded health expenditure:

- Official development assistance are resource flows that are: (a) undertaken by the official sector; (b) have promotion of economic development and welfare as the main objective and (c) at concessional financial terms. Technical cooperation is included in aid.
- Other official flows are transactions by the official sector with countries that do not meet the conditions for eligibility for ODA, either because they are not primarily aimed at development, or because they have a grant element of less than 25%.
- Private development finance consists of flows at market terms financed out of private sector resources. In the OECD CRS database, it includes grants from private foundations that report their data to OECD, such as the Bill & Melinda Gates Foundation.

Concessional loans and grant element

The concessionality (softness) of a loan is calculated as the difference between the face value of the loan and the discounted present value of the service payments the borrower will make over the lifetime of the loan, expressed as a percentage of the face value. Four factors determine the grant element: interest rate (per cent per annum); grace period (the interval from commitment date to the date of the first payment of amortization); maturity (the interval from commitment date to the date of the last payment of amortization); and discount rate used to determine the present value of future payments. For bilateral and multilateral loans to the official sector, the discount rates used in the ODA calculation are differentiated by the recipient country’s income group.

To be registered as ODA in the OECD Development Assistance Committee CRS database, a concessional loan should have a grant element of at least:

- 45% for bilateral loans to the official sector of least developed countries and other low income countries (calculated at a rate of discount of 9%);
• 15% for bilateral loans to the official sector of lower-middle income countries (calculated at a rate of discount of 7%);
• 10% for bilateral loans to the official sector of upper-middle income countries (calculated at a rate of discount of 6%); and
• 10% for loans to multilateral institutions (calculated at a rate of discount of 5% for global institutions and multilateral development banks, and 6% for other organizations, including subregional organizations).

Currently, estimates by WHO of external aid in GHED for countries without national data take into account the total value of disbursements for concessional loans classified as ODA (in other words, the grant element of the loan + the nongrant part of the loan).

**Purpose codes**

Aid to general health (code 120) and to population policies/programmes and reproductive health (code 130) is included in WHO estimates of externally funded health expenditure. Four classes are excluded because they lie outside the set boundaries of health accounts (current) or capital accounts, which are medical education/training (12181), medical research (12182), research for prevention and control of noncommunicable diseases (12382) and population policy and administrative management (13010). One item within capital investment is reported separately from current health expenditure (basic health infrastructure – 12230). However, disbursements for capital investments can still be included under all other categories taken into account for WHO estimates of externally funded health expenditure. These categories are:

• 12220 Basic health care
• 12240 Basic nutrition
• 12250 Infectious disease control
• 12261 Health education
• 12262 Malaria control
• 12263 Tuberculosis control
• 12281 Health personnel development
• 12310 NCDs control, general
• 12320 Tobacco use control
• 12330 Control of harmful use of alcohol and drugs
• 12340 Promotion of mental health and well-being
• 12350 Other prevention and treatment of NCDs
• 13020 Reproductive health care
• 13030 Family planning
• 13040 STD control including HIV/AIDS
• 13081 Personnel development for population and reproductive health.

The data used are lagged by 1 year to take into account national capacities to absorb and consume the funds received (i.e. disbursements for 2019 in CRS database are used to estimate
external health spending for 2020 in GHED). To estimate the “Transfers distributed by government from foreign origin” (FS.2), the share of aid channelled to the public sector (as reported by the OECD CRS channel variable) is used. The remainder is allocated to direct foreign transfers (FS.7).

**Annex 2 – Full list of diseases and conditions by category**

<table>
<thead>
<tr>
<th>Disease/condition code</th>
<th>Disease/condition name</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIS.1</strong></td>
<td>Infectious and parasitic diseases</td>
</tr>
<tr>
<td>DIS.1.1</td>
<td>HIV/AIDS and other sexually transmitted diseases (STDs)</td>
</tr>
<tr>
<td>DIS.1.1.1</td>
<td>HIV/AIDS and opportunistic infections (OIs)</td>
</tr>
<tr>
<td>DIS.1.1.1.1</td>
<td>HIV/AIDS</td>
</tr>
<tr>
<td>DIS.1.1.1.2</td>
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<td>Contraceptive management (family planning)</td>
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<td>Nutritional deficiencies</td>
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<td><strong>DIS.4</strong></td>
<td>Noncommunicable diseases (NCDs)</td>
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<td>DIS.4.1</td>
<td>Cancers</td>
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DIS.4.2 Endocrine and metabolic disorders
  DIS.4.2.1 Diabetes
  DIS.4.2.nec Other and unspecified endocrine and metabolic disorders (n.e.c.)
DIS.4.3 Cardiovascular diseases
  DIS.4.3.1 Hypertensive diseases
  DIS.4.3.nec Other and unspecified cardiovascular diseases (n.e.c.)
DIS.4.4 Mental & behavioural disorders, and neurological conditions
  DIS.4.4.1 Mental (psychiatric) disorders
  DIS.4.4.2 Behavioural disorders
  DIS.4.4.3 Neurological conditions
  DIS.4.4.nec Unspecified mental & behavioural disorders and neurological conditions (n.e.c.)
DIS.4.5 Respiratory diseases
DIS.4.6 Diseases of the digestive system
DIS.4.7 Diseases of the genitourinary system
DIS.4.8 Sense organ disorders
DIS.4.9 Oral diseases
DIS.4.nec Other and unspecified noncommunicable diseases (n.e.c.)

**DIS.5** Injuries

| DIS.5.1 | Road traffic accidents |
| DIS.5.nec | Other and unspecified injuries (n.e.c.) |

**DIS.6** Non-disease specific (administration and governance at the central level)

| DIS.nec | Other and unspecified diseases/conditions (n.e.c.) |

n.e.c. = not elsewhere classified.

The DIS.6 category was initially meant to capture health-system-related spending pertaining to central administration and governance that could not immediately be linked to a particular disease. However, from a methodological perspective, this type of spending is best traced under the health care function classification, which records the purpose of the spending incurred, or under the health care provider classification. For some countries, however, splitting administration- and governance-related spending by disease represents a challenge, since the underlying routine health information management system is not necessarily equipped with details that permit such distribution. So, some countries are still using this DIS.6 category in their health accounts. WHO, when it receives such results, proceeds with DIS.6 amount redistribution to the actual disease categories before global-level release of data, because consistency is crucial for international comparability. The share of DIS.1–DIS.5 and DIS.nec is applied.
Annex 3 – Steps to distribute DIS.6

1. Define health care revenue groups

The redistribution is undertaken for the main health financing scheme revenue (FS) groups as follows:

\[ GGGGGGGGG = FFFF.1 + FFFF.3 \]
\[ GGESEE = FFFF.2 + FFFF.7 \]
\[ PPPPEE-GG = FFFF.4 + FFFF.5 + FFFF.6 + FFFF.\text{num}\]

Where GGHE-D refers to domestic public sources, including government domestic revenue allocated to health purposes (FS.1) and social insurance contributions (FS.3). EXT, for external aid, includes both transfers from foreign origin distributed by the government (FS.2) and direct foreign transfers (FS.7). PVT-D refers to private domestic sources, including unspecified and compulsory prepayment other than FS.3 (FS.4), voluntary prepayment (FS.5), other domestic revenues (FS.6) and unspecified revenues of health care financing schemes (FS.nec). Note that there is an intermediary step for the calculation of PVT-D – out-of-pocket (OOP) spending (FS.6.1) is calculated separately from other private domestic sources, and the two are then added.

2. Deduct DIS.6 by FS group

After defining FS groups, it is necessary to deduct the expenditure on DIS.6 from each expenditure by FS group as follows:

\[ z_{ijt} = x_{ijt} - GGDF.6_{ijt} \]

Where:

\( z_{ijt} \) – the FS group expenditure after deducting DIS.6

\( x_{ijt} \) – the expenditure by FS group

\( GGDF.6_{ijt} \) – the expenditure on DIS.6 by FS group

\( j \) – FS groups (GGHE-D, EXT, OOP and others)

\( t \) – estimated year.

3. Compute new disease shares

The shares are computed by dividing the initial disease expenditure by FS group (\( dd_{ijitt} \)) between the respective FS group expenditure after deducting DIS.6 (\( zz_{ijt} \)):

\[ ss_{ijt} = \frac{zz_{ijt}}{dd_{ijitt}} \]

Where:

\( ss_{ijt} \) – the disease share after deducting DIS.6 by FS group
$dd_{iiпт} – the initial disease expenditure by FS group

$zz_{iiпт} – the FS group expenditure after deducting DIS.6

$ii – disease category

$j – FS groups (GGHE-D, EXT, OOP and others)

$t – estimated year.

4. **Compute new disease expenditure after redistributing DIS.6**

The new disease expenditure after redistributing DIS.6 can be computed using different methods, but always keeping mathematical consistency.

a) **Redistributing the expenditure on DIS.6:**

This consists of reallocating DIS.6 to DIS.1–DIS.5 and DIS.nec using the disease share after deducting DIS.6 calculated in step 3. The expenditure on DIS.6 redistributed is computed by multiplying the expenditure on DIS.6 by FS group by the disease share, $SS_{иипт}$:

$$rr_{иипт} = ss_{иипт} \times GGDFF.6_{иипт}$$

Where:

$SS_{иипт} – the disease share after deducting DIS.6 by FS group

$rr_{иипт} – the expenditure on DIS.6 redistributed

$GGDFF.6_{иипт} – the expenditure on DIS.6 by FS group

$ii – disease category

$j – FS groups (GGHE-D, EXT, OOP and others)

$t – estimated year.

Then, the new disease expenditure after distributing DIS.6 is:

$$yy_{иипт} = dd_{иипт} + rr_{иипт}$$

Where:

$rr_{иипт} – the expenditure on DIS.6 redistributed

$yy_{иипт} – the new disease expenditure by FS group

$dd_{иипт} – the initial disease expenditure by FS group
ii – disease category

j – FS groups (GGHE-D, EXT, OOP and others)

t – estimated year.

b) **Computing the new disease expenditure directly:**

Another way of distributing DIS.6 is recomputing the disease expenditure by FS group directly. The new amounts are the results of multiplying the disease share after deducting DIS.6 \((ss_{iitt})\) by the total expenditure by FS group \((xx_{iitt})\):

\[yy_{iitt} = ss_{iitt} \times xx_{iitt}\]

Where:

\(ss_{iitt}\) – the disease share after deducting DIS.6 by FS group

\(yy_{iitt}\) – the new disease expenditure by FS group

\(xx_{iitt}\) – the expenditure by FS group

\(ii\) – disease category

\(j\) – FS groups (GGHE-D, EXT, OOP and others)

\(t\) – estimated year.

Table A3.1 shows examples of redistributions following these methods.
## Table A3.1 Example for the redistribution of DIS.6 data by other diseases crossed by financing sources

<table>
<thead>
<tr>
<th>DIS</th>
<th>FS.1</th>
<th>FS.3</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIS.1</td>
<td>78.78</td>
<td>15.76</td>
<td>94.53</td>
<td>0.42</td>
<td>78.47</td>
<td>a.1. The expenditure on DIS.6 redistributed (DIS.6×row values in step 3)</td>
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<tr>
<td>DIS.1.1</td>
<td>1.43</td>
<td>0.29</td>
<td>1.71</td>
<td>0.01</td>
<td>1.419</td>
<td>a.2. The new disease expenditure by FS group (a.1 + step 1)</td>
</tr>
<tr>
<td>DIS.1.2</td>
<td>3.41</td>
<td>0.68</td>
<td>4.09</td>
<td>0.02</td>
<td>3.392</td>
<td>b. Computing the new disease expenditure directly (total in step 1×row values in step 3)</td>
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<tr>
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<td>0.17</td>
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<tr>
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<td>33.05</td>
<td>0.15</td>
<td>27.433</td>
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</tr>
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<td>10.45</td>
<td>0.05</td>
<td>8.678</td>
<td></td>
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<tr>
<td>DIS.1.6</td>
<td>7.76</td>
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<td>9.31</td>
<td>0.04</td>
<td>7.732</td>
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### Step 1
- **Define FS groups** (GGHE-D + FS.1 + FS.3)

### Step 2
- **Discount DIS.6 by FS group** (GGHE-D – DIS.6×GGHE-D)

### Step 3
- **Compute new disease shares** (each row in step 1/total in step 2)

### Step 4
- **Compute new disease expenditure** after redistributing DIS.6
  - a.1. The expenditure on DIS.6 redistributed (DIS.6×row values in step 3)
  - a.2. The new disease expenditure by FS group (a.1 + step 1)
  - b. Computing the new disease expenditure directly (total in step 1×row values in step 3)

<table>
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<tr>
<th>DIS</th>
<th>FS.1</th>
<th>FS.3</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
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## Annex 4 – Possible crosses between financing sources and financing schemes under SHA 2011

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<td>Transfers distributed by government on behalf of specific groups</td>
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<td>Soc. insurance contributions</td>
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<td>Voluntary prepayment</td>
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</tbody>
</table>

NPISH = Non-profit institutions serving households

**Notes:**
- Cross is strongly possible
- Cross is possible

Other crosses are also possible in certain country health financing systems.
Annex 5 – Metadata fields presented on the GHED

**Country attributes**
- Country name
- Currency
- WHO region name
- Income group name
- Fiscal year
- Official focal point
- Footnote

**Indicator attributes**
- Name
- Unit
- Footnote
- Sources
- Comments
- Methods of estimation
- Data type

**Observation attributes**
- Sources
- Comments
- Methods of estimation
- Data type
- Last updated
- Validation