WHO methods and data sources for global monitoring of UHC indicators of financial protection coverage within the Sustainable Development Goals

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Introduction

Universal health coverage (UHC) is Target 3.8 of the Sustainable Development Goals (SDGs) which requires regular reporting on progress. The SDGs define UHC as a process of progressive realization in which all people receive the quality, essential health services they need, without being exposed to financial hardship. Monitoring UHC therefore requires measuring health service coverage and financial protection within countries, territories, and areas, including coverage and financial protection among disadvantaged populations to track equity.

This methodological note describes an approach to monitoring the financial protection coverage component of the UHC target within the SDGs, namely indicator 3.8.2. This is defined as the "Proportion of the population with large household expenditure on health as a share of total household consumption expenditure or income". Large household expenditures on health are identified using two thresholds: 10% and 25% of total household consumption expenditure or income (See SDG 3.8.2 metadata).

This definition (including its two thresholds) has been chosen following a consultative two-year process led by the Inter-Agency Expert Group on SDG indicators. The UN recognizes WHO as the custodian agency for SDG indicator 3.8.2. and the World Bank as a co-custodian.

This note also describes other indicators that can be used to demonstrate the interdependency between different SDG targets, specifically, the "Eradication of extreme poverty" (SDG target 1.1) and "Universal health coverage" (SDG target 3.8). Health care expenditures can be a major source of impoverishment. It is possible to monitor indicators focusing on the extent to which direct spending on health at point of use contributes to poverty.

What is the purpose of this consultation?

We ask focal points to carefully review the information in this document.

Please let us know if:

- you have **comments** on the financial protection methods, data sources, and estimates set out in this consultation. The consultation on countries, territories and areas data will be based on WHO's quality standards for data publication, as adopted by the Executive Board members during its 111th session. The figures represent the best estimates available to start the country consultation as of January 24, 2023. The source of the estimates is indicated in the excel file and general explanations are given in the accompanying document describing the content of the financial protection tables.

- **more recent data or alternative data sources** are available for your country/territory/area. The data sources to prepare estimates for your country/territory/area are listed in the accompanying excel or alternatively, if there are no estimates available at all, please let us know if there is any data source which could be used to produce them. If WHO managed to identify a potential data source, it is included in a separate pdf file. As indicated in the circular letter (C.L.48.2022), **focal points are asked to provide the data needed to produce the UHC SDG indicators for all years for which relevant data is available.**

- you have a **national framework for monitoring financial protection**; some countries have defined their own set of indicators to monitor progress towards UHC (with or without the support of WHO or other international agencies); knowing what indicators and data sources you are using would give us a better understanding of similarities and differences across countries, territories, and areas, and help inform and improve our global and regional monitoring efforts

To produce global estimates – and keep them up to date – requires access to anonymized microdata, usually from household budget surveys, household living standard survey or income and expenditure surveys.

WHO is available to work more closely with your Ministry of Health and national statistics office (NSO) in data analyses.

If WHO is granted direct access to the data, we can produce regional and global indicators on your behalf. If it is impossible to give WHO direct access to the data but you can share a small sample of the data with us, we will prepare Stata codes that you can then apply to the full dataset to produce indicators to be shared with us. If WHO is not permitted any access to the data, we can provide you with generic Stata codes that you can tailor to the dataset to produce indicators to be shared with us.

Please email your feedback to uhc_stats@who.int .

Deadline

The consultation will close on 1 March 2023. We would be grateful for your feedback as soon as possible before this date. Any comments made after this deadline will not be incorporated in the update of databases planned from July 2023, but we will continue working with you on estimates for publication in the next round.

Key terms used in this document

Household expenditures on health (out-of-pocket payments): Household expenditures on health are also known as out-of-pocket payments. Out-of-pocket payments are formal and informal payments made by people at the time of using any health service provided by any type of provider. They do not include reimbursement by a third party such as the government, a health insurance fund, or a private insurance company. For further information, see the classification of health care financing schemes in the International Classification for Health Accounts, a collaboration between the OECD, Eurostat and the WHO.

Financial hardship (catastrophic or impoverishing out-of-pocket payments): Out-of-pocket payments result in financial hardship when people exceed a pre-defined threshold of a household's budget or income. Out-of-pocket payments leading to financial hardship are characterized as 'catastrophic' or 'impoverishing'. In the context of the SDGs, catastrophic out-of-pocket payments are referred to as 'large household expenditure on health as a share of total household consumption (or income)'.

Poverty line: A poverty line is a level of personal or household income or consumption below which one is classified as poor. Poverty lines can be defined in different ways.

Overview

High performing health financing systems should aim to achieve two goals[1]:

1. Provide all people with access to needed health services (including prevention, promotion, treatment and rehabilitation) of sufficient quality to be effective.
2. Ensure that the use of these services does not expose the user to financial hardship.

In 2005, the World Health Assembly unanimously adopted a resolution urging countries, territories and areas to develop their health financing systems to achieve these two goals, defined then as achieving universal coverage[2]. The second goal contains the financial protection dimension of UHC. For people who end up paying for their needed health care, it entails protecting them from the adverse effects that such payments may have on their living standards. To measure such detrimental impact the focus is on direct health care payments (known as out-of-pocket payments) and monetary welfare. The concern is about the trade-off people must make between paying for health care and paying for other necessities such as food, education and housing to the extent that some of these people may be pushed or further pushed into poverty, even if just for a short period of time.

This document describes the methods used globally to prepare estimates aimed at capturing such negative effects. It includes the following indicators:

- **The SDG indicator 3.8.2** is defined as the "Proportion of the population with large household expenditure on health as a share of total household consumption expenditure or income". It aims to capture the first possible negative impact. This indicator is based on a methodology developed by Wagstaff and van Doorslaer in 2003.[3] For global monitoring, this approach has the advantage of being simple to estimate. It is based on a metric that is routinely produced by national statistical offices in most countries, territories, and areas albeit not yet for the purpose of monitoring financial protection. Some of the limitations of this indicator are listed in *SDG indicator metadata available from UNSD website.* Alternative indicators used by countries and regions address some of these limitations and form part of a broader framework of regional and country/territory/ area-specific monitoring of financial protection.[4]

- **Additional indicators** are used to assess the extent to which direct health care payments contribute to exacerbate poverty, specifically:
    - **The population impoverished (%) defined as increase in poverty headcount after household health expenditures**
    - **The population further impoverished (%) defined as poor people with health expenditures as a proportion of the total population.**
    - **The increase in poverty gap after household expenditures on health**.

[1] World Health Organization (2010)
The world health report: health systems financing: the path to universal coverage (who.int).

[2] Resolution WHA58.33. Sustainable health financing, universal coverage and social health insurance In: Fifty-eighth World Health Assembly, Geneva, 16–25 May 2005 (WHA58/2005/REC/1) Microsoft Word - A58_R1_R&D-en.doc (who.int)
[3] Wagstaff A, van Doorslaer E (2003) Catastrophe and impoverishment in paying for health care: with applications to Vietnam 1993–1998. Health Econ 12: 921–934.
[4] For an example see http://www.euro.who.int/__data/assets/pdf_file/0005/317543/10-Research-article-monitoring-financial-protection-assess-progress-universal-health-coverage-Europe.pdf?ua=1

The poverty headcount ratio and the poverty gap are both members of the Foster-Greer-Thorbecke (FGT) family of poverty measures[5]. The approach was developed in the early 2000s.[6]

Data sources

Preparing country-level estimates requires access to nationally representative household survey data. In addition to household budget surveys (HBS), household income and expenditure surveys (HIES) and socio-economic or living standards surveys collect in general all the relevant information, see the data requirements section. These surveys are sometimes standardized for cross-country comparability by EUROSTAT, the Luxembourg Income study or the World Bank.

The survey used to prepare the global indicators in the attached excel file can be identified using the ISO 3166-1 alpha-3 code, the year of the survey, the survey acronym, the version of the survey and (where relevant) the adaptation.

Data requirements

The following variables are needed to estimate the indicators of financial protection discussed in this document:

- Total household consumption expenditure should be gross of all payments toward health care
- Total household expenditure on health should be net of any reimbursement
- Household size *($hhsize_h$)*
- Household sampling weight (w_h)

All these four basic variables are at the household level. Information on household rural/urban location; the characteristics of the head of the household, household's age structure using a five year age interval to identify members at different stages of the life cycle[7] and other socio-economic variables is useful to track inequalities. For an in-depth analysis of the drivers of financial hardship, information on the composition of total household expenditure on health, by type of provider is required.

[5] Foster, J. E., J. Greer, and E. Thorbecke. 1984. "A Class of Decomposable Poverty Measures." Econometrica 52 (3): 761–66.

[6] Chapter 19 in O'Donnell O, Doorslaer EV, Wagstaff A, Lindelow M (2008) Analyzing Health Equity Using Household Survey Data : A Guide to Techniques and Their Implementation (worldbank.org). Washington (D.C.): World Bank Publications.

[7] Diaz T, Strong KL, Cao B, Guthold R, Moran AC, Moller AB, Requejo J, Sadana R, Thiyagarajan JA, Adebayo E, Akwara E, Amouzou A, Aponte Varon JJ, Azzopardi PS, Boschi-Pinto C, Carvajal L, Chandra-Mouli V, Crofts S, Dastgiri S, Dery JS, Elnakib S, Fagan L, Jane Ferguson B, Fitzner J, Friedman HS, Hagell A, Jongstra E, Kann L, Chatterji S, English M, Glaziou P, Hanson C, Hosseinpoor AR, Marsh A, Morgan AP, Munos MK, Noor A, Pavlin BI, Pereira R, Porth TA, Schellenberg J, Siddique R, You D, Vaz LME, Banerjee A. A call for standardised age-disaggregated health data. Lancet Healthy Longev. 2021 Jul;2(7):e436-e443. doi: 10.1016/S2666-7568(21)00115-X. Erratum in: Lancet Healthy Longev. 2021 Aug;2(8):e458. PMID: 34240065; PMCID: PMC8245325.

Description of methods

Household consumption expenditure variables

The proposed SDG indicator 3.8.2 and the additional indicators of direct health care cost and poverty are based on nationally representative household surveys that should gather accurate information on *both*:

1. Total household consumption expenditure or total household income
2. Total household expenditure on health

Definitions for both are provided in the SDG indicator metadata . Here we note that total household consumption expenditure is the preferred indicator of a household's welfare.

When there is information on total household consumption expenditure or total household income, consumption expenditure is preferred as it tends to be less variable over time, see SDG indicator metadata.

Total household expenditure on health should include the following broad categories of health commodities and services: medicines and medical products (06.1), outpatient care services (06.2) and inpatient care services (06.3) as describe in division 06 of the UN Classification of Individual Consumption According to Purpose (COICOP)[8]. Considering these requirements, household budget surveys (HBS), household income and expenditure surveys (HIES), socio-economic or living standards surveys are the preferred source of information for both 1 and 2.

Total household expenditure on health should be net of any reimbursement to measure any potential hardship such expenses may cause. These expenditures are solely financed by household income (including remittances), savings or loans and characterize direct payments for health care, sometimes also called out-of-pocket expenditures (OOPs).[9] Another way to get data on these direct payments is to specify in the questionnaire that health expenditures should be net of any reimbursement if the household is covered by a health insurance but inclusive of deductibles, co-payments and co-insurance.[10]

Construction of variables and estimation of indicators

All the variables related to expenditure are converted to daily figures. Where survey data is provided in other units (when the recall period is seven days, two weeks, three months, six months, or one year) the data should be adjusted to daily figures. An example here is to denote daily total household consumption expenditure or income per capita (*hh_expcapd*) and daily total household expenditure on health per capita (*hh_**h**expcapd*).

The SDG indicator 3.8.2 is based on a health expenditure budget share defined as the ratio of (4) over (3).

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[8] COICOP 2018 (un.org)

[9] See footnote 1.

[10] Deductibles are the amount of expenses that must be paid out of pocket before an insurer will cover any expenses at all. Co-insurance reflects the proportion of subsequent costs that must be met out of pocket by the person who is covered, while co-payments are set as a fixed amount the beneficiary must pay for each service.

$$r_h = \frac{hh\_\boldsymbol{h}expcapd}{hh\_expcapd}$$

Health expenditure is identified as 'large' when the ratio exceeds a threshold denoted τ. The proportion of the population with large household expenditures on health as a share of household total consumption expenditure or income is estimated as a population-weighted average as follows:

$$SDG3.8.2_\tau = \frac{\sum_i m_i\, w_i \mathbb{1}\left(\frac{health\ expenditure\ of\ the\ household\ i}{total\ consumption\ expenditure\ of\ the\ household\ i} > \tau\right)}{\sum m_i\, w_i}$$

Where i denotes a household, 𝟙 () is the indicator function which is equal to 1 if the bracketed expression is true and is equal to 0 otherwise; m_i corresponds to the number of household members of i, w_i corresponds to the sampling weight of household i , τ are two thresholds used to identify large household expenditures on health as a share of total household consumption or income in global reporting:

$$\tau = 0.1\ (i.e.\ 10\%)\ \&\ \tau = 0.25\ (i.e.\ 25\%)$$

Impoverishing health spending indicators adjust poverty measures to consider that health care payments result in fewer economic resources to spend on other basic necessities identified by a poverty line. This adjustment presumes that a household's economic resources are fixed. To measure these indicators, a poverty index needs to be chosen as well as poverty line.

Poverty lines

For global monitoring within the UN SDG monitoring framework, three poverty lines are used:

- the new extreme poverty of $2.15 per day per capita using 2017 purchasing power parities (PPPs) for private consumption which replaces the $1.90 poverty line based on 2011 PPPs. This line is used to track progress towards SDG 1 "Eradicate poverty in all its forms". This line is labelled IPL1 in the rest of this document.
- The new moderate poverty line of $3.65 per person per day is based on 2017 PPPs which replaces the $3.20 poverty line based on 2011 PPPs is also used. It corresponds to the typical standard used to assess national poverty levels in lower-middle-income countries. This line is labelled *IPL*2 hereafter.
- a relative poverty defined as 60% of median daily household consumption or income per person. Indeed, many countries, especially high income ones, rely on poverty lines expressed as a percentage of mean or median consumption in a country/territory/area. These lines are useful for cross- country/territory/area comparisons, as IPLs might be too high or too low depending on the level of economic development of the country/territory/area.[11]

*IPL*1 and *IPL*2 are both expressed in 2017 prices. When measuring poverty for other years, the international poverty line at PPP is converted to local currencies in 2017 prices and is then converted to the prices prevailing at the time of the relevant household survey using the best available Consumer

[11] To assess if IPLs are too low or too high for your country/territory/area, it is useful to compare their values in local currency units to the median daily per capita level of total household consumption or income. Medians are given in the accompanying excel file.

Price Index (CPI) [12]. In order words, if a country/territory/area's PPP for private consumption in 2017 is 2.5 (2.5 local currency units to the dollar), then the $2.15 a day poverty line is equivalent to (2.5 x 2.15 =) 5.38 currency units a day in 2017.[13]

Suppose that the household survey data at hand is for 2019, and the CPI for that year is 95 (with 2017=100 or a 5% reduction in consumer prices for private consumption); then the $2.15 a day line in local currency units for 2017 is equivalent to ((2.15 x 2.50)x 0.95 = 5.38 x 0.95 =) 5.11 a day in local currency for 2019. Similarly, the $3.65 a day line would be equivalent to (3.65 x 2.50 x 0.95 =) 8.67 a day in local currency for 2019. PPP data are downloadable from the World Bank's (WDI) data website[14] and the Poverty and Inequality Platform (PIP). Data on CPIs is also downloadable from the Poverty and Inequality Platform (PIP). PIP is the preferred data source for both CPIs and PPPs. For more information about the purchasing power parity revision (PPP), please consult https://www.worldbank.org/en/news/factsheet/2022/05/02/fact-sheet-an-adjustment-to-global-poverty-lines

Poverty measures

We use the Foster-Greer-Thorbecke (FGT) family of poverty measures. This set of measures has the following formulation:

$$P_{FGT}(x; z, \alpha) = \frac{1}{\sum m_i\, w_i} \sum_i m_i\, w_i \mathbb{1}(x_i < z) \left(\frac{z - x_i}{z}\right)^{\alpha} \quad , \qquad \alpha = 0, 1$$

Where x_h is a measure of a household's monetary welfare; z is a poverty line; $\mathbb{1}$ () is the indicator function which is equal to 1 when household's welfare measure is below the poverty line and 0 otherwise; m_i corresponds to the number of household members of i, w_i corresponds to the sampling weight of household i. If the sample is self-weighting, then only the household size is used as the weight in computation. Where available, other parameters of the sample design such as the primary sampling unit or the strata are also taken into consideration to estimate poverty.

When the parameter α is equal to 0, then $P_{FGT}(x; z, 0)$ corresponds to the well-known poverty headcount ratio which gives the proportion of the population below the poverty line z. When $\alpha = 1$, $P_{FGT}(x; z, 1)$ corresponds to the poverty gap which measures the severity of poverty as the distance between a household's welfare measure and the poverty line expressed as a proportion of the poverty line. This index increases if the poor become poorer on average, even if there is no change in the proportion of the population that is poor. It is therefore sensitive to average changes in welfare's shortfalls of the poor.[15]

To measure income poverty, a measure of household's monetary welfare has to be chosen. Most countries/territories/areas use total household consumption expenditure or income as such. However, this over-estimates the resources that are available to reach the minimum subsistence level identified by the poverty line. Some people might have levels of spending above the poverty line only because of their direct health care payments, while spending on necessities such as food, clothing and housing

[12] https://unstats.un.org/sdgs/metadata/files/Metadata-01-01-01a.pdf

[13] For some countries/territories/areas IPLs might be too high or too low depending on their economic level of development. To assess this, it is useful to compare their values in local currency units to the median daily per capita level of total household consumption or income. Medians are reported in the excel file tables.

[14] PPPs may need to be rebased to 2017 using again CPIs for private consumption.

[15] For further discussions about poverty indicators please consult https://openknowledge.worldbank.org/bitstream/handle/10986/13731/9780821384619.pdf

might still be below minimum living standards. To assess this, poverty is measured based on daily total household consumption expenditure or income *gross and net* of daily health care payments.

Differences between these poverty estimates give an estimate of the extent to which health care payments contribute to exacerbate poverty, as follows:

- The population impoverished after paying out of pocket which correspond to the increase in in the poverty headcount ratio after household expenditures on health): $P_{FGT}\left(hh_{expcapd}{}^{N}; z, 0\right) - P_{FGT}\left(hh_{expcapd}{}^{G}; z, 0\right)$
- The average increase in the depth of poverty due to out-of-pocket payments corresponds to the increase in the poverty gap ratio after household expenditures on health: $P_{FGT}(hh\_expcapd^{N}; z, 1) - P_{FGT}(hh\_expcapd^{G}; z, 1)$

Where $hh\_expcapd^{N} = hh\_expcapd \quad - hh\_\boldsymbol{h}expcapd$ and $hh\_expcapd^{G} = hh\_expcapd$

In addition to increases in the incidence of poverty and depth of poverty, we identify the proportion of the population further impoverished which corresponds to the proportion of poor people with household expenditures on health as a proportion of the total population. This indicator gives more visibility to the financial hardship experienced by poor people. People defined as poor are those living in households that were already below the poverty line before health payments.

Indicators of impoverishing health spending are indicative of the scale of impoverishing effect of health payments under the assumptions that all direct health care payments are non-discretionary, and that household's resources are fixed.[16] These indicators also assess where near-poor and poor people with out-of-pocket payments stand in relation to the global poverty lines.

Distribution

Global indicators are disaggregated by area of residence; gender of the head of the household (male/female); age of the head (below and above 60); and the age structure of the household using at most 6 categories: 20-59 years old members – "adults only"; below 59 years old members – "adults w/ children and adolescents"; all ages – "Multigenerational households"; from 20 years old – "Adults w/ older persons"; from 60 years old – "Only older adults"; below 20 years old – "children and adolescents only". Countries may find it relevant to analyse other equity dimensions. To include other dimensions in the global framework, they need to be feasible across most regions in the World.

Data use

WHO and the World Bank published global reports on UHC as well as on financial protection in health in 2017, 2019, and 2021 (see references below). Estimates at different geographical levels (global, regional, countries, territories or areas) are available from the WHO global data portal, the World Bank's data portal and the UNSD's SDG global data portal. WHO and the World Bank are going to publish another global report in September 2023.

[16] For further discussions about measure of direct health care payments and poverty please consult:
Chapter 19 in O'Donnell O, Doorsslaer EV, Wagstaff A, Lindelow M (2008) Analyzing health equity using household survey data: a guide to techniques and their implementation. Washington (D.C.): World Bank

For further information on the methods used to track SDG and SDG related indicators of financial protection in health, see:

For SDG indicator 3.8.2:
E-handbook on SDG indicators
https://unstats.un.org/wiki/display/SDGeHandbook/Indicator+3.8.2

Link to Metadata for SDG indicator 3.8.2
https://unstats.un.org/sdgs/metadata/files/Metadata-03-08-02.pdf

Wagstaff A, Flores G, Hsu J, Smitz M-F, Chepynoga K, Buisman LR et al (2017). Progress on catastrophic health spending: results for 133 countries. A retrospective observational study. Lancet Global Health.

For impoverishing health spending indicators, related to SDG 1:

Wagstaff A, Flores G, Smitz M-F, Hsu J, Chepynoga K, Eozenou P (2017). Progress on impoverishing health spending: results for 122 countries. A retrospective observational study. Lancet Global Health.

For further information about the global reports, please consult:

World Health Organization and International Bank for Reconstruction and Development / The World Bank. (2021). Global monitoring report on financial protection in health 2021.

World Health Organization (2021). Tracking Universal Health Coverage: 2021 global monitoring report.

Earlier publications can be accessed from https://www.who.int/teams/health-systems-governance-and-financing/global-monitoring-report

Find out more about WHO's work on financial protection at a global level.

Future work priorities

The purpose of this consultation is to gather comments about preliminary estimates where available, and about the underlying methods and data sources to monitor financial protection in health in the era of the Sustainable Development Goals. WHO has monitored financial protection over the past 21 years.[17] National Statistical Offices (NSOs) of almost all countries/territories/areas already collect the necessary information through their household surveys. However, NSOs may not be aware they can use it to produce a core measure of health system performance.

WHO hopes that through this consultation, MOHs can engage in a closer collaboration with NSOs to set the path for the institutionalization of these indicators, in addition to the other more refined indicators of financial protection that have been endorsed by the regions. WHO is happy to support such effort and facilitate discussions as well as provide all the relevant technical information.

[17] Monitoring financial protection (who.int)

WHO will also continue to work on improving cross- country/territory/area comparability with respect to health expenditure data collected in household surveys so that sources of funding used by the household to pay for health care can be identified. Another way to get data on these direct payments is to specify in the questionnaire that health expenditures should be net of any reimbursement if the household is covered by a health insurance but inclusive of deductibles, co-payments, and co-insurance. But to our knowledge, while all surveys with an expenditure module collect information on health expenditures, they do not necessarily gather sufficient information to measure direct health care payments alone.

For those countries/territories/areas where there is retrospective reimbursement, depending on how such reimbursement is made and whether there are some cost-sharing obligations, the amount reported by a household on health expenditures might be totally or partially reimbursed at some later point, perhaps outside the recall period of the household survey. In such countries/territories/areas, the proposed SDG indicator 3.8.2 and the additional indicators may over-estimate the extent to which health care payments cause financial hardship. The World Health Organization is collaborating with different UN agencies and other important stakeholders to improve survey instruments to collect data on direct health care payments.[18]

Another area deserving further effort is analysis of the drivers of large health expenditures. Here again, there is the need to make better use of international classifications such as the international classification for health accounts[19] to structure household spending on health. This means that in-depth analysis on the structure of household's direct health payments, including large ones, potentially causing financial hardship can be better explored.

More refined information on direct health care payments is also critical to move towards a more comprehensive monitoring framework of the performance of the health financing system. This would enable us to answer key policy questions such as who benefits from public subsidies in the utilization of health services, who pays for health care and whether such payments fairly distributed across the population.[20]

[18] One example is the WHO engagement in the 2018 revision of COICOP by UNSD COICOP Revision - United Nations Statistics Division. Another example is a BMGF project WHO is supporting to improve the measurement of household health expenditures http://www.indepth-network.org/projects/ihope

[19] A system of health accounts 2011 (who.int)

[20] Refer to footnote 2.