

# Tracking Immunization Expenditures Using the SHA2011 Framework

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## Abbreviations

CRS	Creditor Reporting System
EPI	Expanded Programme on Immunization
HA	Health Accounts
HK	Capital Expenditure
JRF	The WHO/UNICEF Joint Reporting Framework [for immunization]
LMICs	Low- and middle-income countries
OECD	Organization for Economic Development and Cooperation
RI	Routine Immunization
SHA	System of Health Accounts
WHO	World Health Organization

# Introduction

## Why track spending on immunization?

Immunization, the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine, is an essential public health intervention estimated to prevent 2-3 million deaths every year<sup>1,2</sup> – thanks notably to efforts such as those of the World Health Organization’s (WHO) Expanded Programme on Immunization (EPI) and of the Global Alliance for Vaccines and Immunization (GAVI), a global health partnership committed to ensuring access to low-cost immunization in low- and middle-income countries<sup>3</sup>. While such global efforts have resulted in large increases in vaccine coverage worldwide, and led to the eradication of smallpox in 1980, there are still large populations that remain uncovered – including nearly 20 million infants yearly. This, in spite of immunization being widely recognized as a highly cost-effective health intervention that reduces the cost of health care that would have otherwise been incurred in treatment of infectious diseases<sup>4,5</sup>. As a matter of fact, WHO sees immunization as *“one of the best health investments money can buy; a key component of primary health care and an indisputable human right”*. It has also been described as having a *“large return on a small investment – higher than most other health interventions, and at least as high as non-health development interventions such as education”*<sup>6</sup>. More recently, a study assessing the economic impact of vaccinations in 73 low- and middle-income countries between 2001 and 2020 estimated it would avert over 20 million deaths and save US\$ 350 billion in cost of illness<sup>7</sup>. Furthermore, the deaths and disability prevented could have resulted in estimated lifelong productivity gains totalling US\$ 330 billion and US\$ 9 billion, respectively.

Country EPI Managers and development partners are understandably interested in tracking expenditure on immunization programs to find out what current spending levels are and how much would be required with program improvements such as introduction of new vaccines and/or different delivery strategies. Estimates of immunization expenditures by source of funding are important for planning and documenting value for money on top of assisting with evidence-based advocacy and policy efforts. Specific policy questions that could be answered with immunization expenditure data, among others, are as follows:

- How much are governments spending on vaccines?
- How much are development partners spending on vaccines?
- How much are governments spending on routine immunization programs?
- How much are development partners spending on routine immunization programs?
- What percent of the spending on routine immunization program is the government paying?

## Boundaries

The boundary for immunization within the SHA 2011 framework is governed by the primary intent of the activity regardless of the level or type of provider of the service or who funds the service<sup>8</sup>. For immunization, literally, this is the process of rendering a subject immune, hence giving people the ability to resist a particular disease – generally an infection – temporarily or permanently. And, that falls under the health care function classification (HC) that describes the purpose of health spending under the SHA 2011 framework – under the first digit level “prevention”<sup>i</sup> to be more precise<sup>9</sup>. **In other words, immunization related expenditures are best tracked under the HC classification, not under the disease one (DIS)**, as the latter would also encompass the spending in relation with the treatment of diseases that might have occurred for the reason that they were not prevented.

In looking at immunization spending boundary it is critical to start with looking at the vaccines that are included under the country’s national immunization program as the starting point and incorporate all spending related to provision of those vaccines. These should include spending on both current and capital items for immunization.

- The current spending incorporates expenditures on vaccines, injection supplies, personnel, utilities and communications, in-service training, printing, energy for running cold chains, and transport fuel associated with the provision of immunization services.
- The capital spending incorporates expenditures on cold chain equipment, cold chain rooms, vehicles, motorcycles, incinerators etc. used for the associated immunization service provision purposes.

While countries formulate their respective schedules based on their own programmatic, epidemiological and policy considerations, WHO puts together recommendations for routine immunization for facilitating the country review and decision making<sup>10</sup>. Figure 1 below provides a summary of the current list of the recommended routine vaccines, diseases they help prevent, age groups targeted and their presentation. And, if some of the vaccines are recommended across the board for all countries, there are some that are specific to regions/countries where the corresponding diseases are endemic.

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<sup>i</sup>According to an OECD supplemental guidance on prevention activities under SHA 2011, for an activity to be counted as prevention expenditure – that is under “HC.6 Preventive care” in the functional classification of health care – it must be within the **prevention boundary**. Activities are within the prevention boundary if they are within the health care boundary and if the primary purpose of an activity is to avoid diseases and risk factors (**primary prevention**) or the early detection of disease (**secondary prevention**). Not included in this category is tertiary prevention (i.e. reducing the negative impact of an already established disease or injury) which is accounted for under curative care (HC.1) and rehabilitative care (HC.2). In the same way, the allocation to the more detailed second-digit prevention categories is made according to the primary purpose of the activity.

Figure 1: WHO's Recommended List of Vaccines and their Characteristics (Recommendations FOR ALL only)<sup>i</sup>

Antigen	Age of 1st Dose	Doses in Primary Series	Interval Between Doses			Booster Dose	Considerations (see footnotes for details)
			1 <sup>st</sup> to 2 <sup>nd</sup>	2 <sup>nd</sup> to 3 <sup>rd</sup>	3 <sup>rd</sup> to 4 <sup>th</sup>		
<b>Recommendations for all children</b>							
<b>BCG</b> <sup>1</sup>	As soon as possible after birth	1					Birth dose and HIV; Universal vs selective vaccination; Co-administration; Vaccination of older age groups; Pregnancy
<b>Hepatitis B</b> <sup>2</sup>	<b>Option 1</b>	As soon as possible after birth (<24h)	3	4 weeks (min) with DTPCV1	4 weeks (min) with DTPCV2		Premature and low birth weight; Co-administration and combination vaccine; High risk groups
	<b>Option 2</b>	As soon as possible after birth (<24h)	4	4 weeks (min) with DTPCV1	4 weeks (min) with DTPCV2	4 weeks (min), with DTPCV3	
<b>Polio</b> <sup>3</sup>	<b>bOPV + IPV</b>	6 weeks (see footnote for birth dose)	4 (IPV dose to be given with bOPV dose from 14 weeks)	4 weeks (min) with DTPCV2	4 weeks (min) with DTPCV3		bOPV birth dose; Transmission and importation risk criteria
	<b>IPV / bOPV Sequential</b>	8 weeks (IPV 1 <sup>st</sup> )	1-2 IPV 2 bOPV	4-8 weeks	4-8 weeks	4-8 weeks	
	<b>IPV</b>	8 weeks	3	4-8 weeks	4-8 weeks	(see footnote)	
<b>DTP-containing vaccine</b> <sup>4</sup>	6 weeks (min)	3	4 weeks (min) - 8 weeks	4 weeks (min) - 8 weeks		3 Boosters 12-23 months (DTP-containing vaccine); 4-7 years (Td/DT-containing vaccine), see footnotes; and 9-15 yrs (Td)	Delayed/ interrupted schedule; Combination vaccine; Maternal immunization
<b>Haemophilus influenzae type b</b> <sup>5</sup>	<b>Option 1</b>	6 weeks (min)	3	4 weeks (min) with DTPCV2	4 weeks (min) with DTPCV3	(see footnote)	Single dose if >12 months of age; Not recommended for children > 5 yrs; Delayed/ interrupted schedule; Co-administration and combination vaccine
	<b>Option 2</b>	59 months (max)	2-3	8 weeks (min) if only 2 doses 4 weeks (min) if 3 doses	4 weeks (min) if 3 doses	At least 6 months (min) after last dose	
<b>Pneumococcal (Conjugate)</b> <sup>6</sup>	<b>Option 1 3p+0</b>	6 weeks (min)	3	4 weeks (min)	4 weeks		Schedule options; Vaccine options; HIV+ and preterm neonate booster
	<b>Option 2 2p+1</b>	6 weeks (min)	2	8 weeks (min)		9-18 months	
<b>Rotavirus</b> <sup>7</sup>	6 weeks (min) with DTP1	2 or 3 depending on product	4 weeks (min) with DTPCV2	For three dose series - 4 week (min) with DTPCV3			Vaccine Options; Not recommended if >24 months old
<b>Measles</b> <sup>8</sup>	9 or 12 months (6 months min, see footnote)	2	4 weeks (min) (see footnote)				Combination vaccine; HIV early vaccination; Pregnancy
<b>Rubella</b> <sup>9</sup>	9 or 12 months with measles containing vaccine	1					Achieve and sustain 80% coverage; Co-administration and combination vaccine; Pregnancy
<b>HPV</b> <sup>10</sup>	As soon as possible from 9 years of age (females only)	2	6 months (min 5 months)				Target 9-14 year old girls; Multi-age cohort vaccination; Pregnancy; Older age ≥ 15 years 3 doses; HIV and immunocompromised

<sup>i</sup> There are other recommended vaccines depending on region/country epidemiological contexts and high-risk populations. There are not reported here.

That said, although countries work towards strengthening their immunization activities that are provided as part of regular health service delivery-routine immunization (RI), they often organize campaigns to address gaps in coverage and prevent potential epidemics – e.g. supplementary immunization activities (SIAs, such as campaigns). While the focus and interest globally is in understanding what is routinely provided versus those that are provided on a supplemental basis; it is critical for the health accounts exercises to separately track and present the spending on both routine immunization and supplementary immunization activities, like campaigns.

## Sources of Data for Immunization Expenditures

### Data for immunization-specific type of spending

Data collection on program and/or disease specific spending – spending lines that are directly attributable to a specific disease and/or intervention (e.g. insulin for diabetes or here vaccines for immunization) – should begin with an interview of the EPI Manager to understand how the national and/or sub-national program (both RI and SIAs) is funded, what the vaccination schedule is, and the structure of the program.

Secondary data on immunization expenditures are available from government records. In addition, data on in-kind donations and other funding lines can be obtained from development partner records. Major donors for immunization programs include the following: Gavi, the Vaccine Alliance<sup>i</sup>, the OECD Creditor Reporting System<sup>ii</sup>, UNICEF (Program and Supply Division), WHO, BMGF, Rotary International, and/or bilateral agencies (DfID, AusAid, Norad, Canada...). Table 1 below provides useful weblinks on where to find specific information from Gavi’s website. It is to be understood, the information collected should be considered as an entry point and would need confirmation at country level; any discrepancy being clearly documented for the record in the health accounts report.

**Table 1: Detailed information publicly available from Gavi’s website**

73 Gavi eligible countries:	<a href="https://www.gavi.org/types-support/sustainability/eligibility">https://www.gavi.org/types-support/sustainability/eligibility</a>
Disbursement data available:	<a href="https://www.gavi.org/programmes-impact/our-impact/disbursements-and-commitments">https://www.gavi.org/programmes-impact/our-impact/disbursements-and-commitments</a>
Co-financing information:	<a href="http://www.gavi.org/country-documents/COUNTRYNAME">www.gavi.org/country-documents/COUNTRYNAME</a>

<sup>i</sup> Data for commitments, approvals & disbursements can be downloaded from <https://www.gavi.org/programmes-impact/our-impact/disbursements-and-commitments>. Handling this dataset, it is crucial to understand **these are not expenditure amounts**. Therefore, purely indicative.

<sup>ii</sup> Creditor Reporting System (CRS): <https://stats.oecd.org>. These too are not expenditure amounts but commitments instead.

Here it is important to note that there are country specific sources of funding for immunization including local NGOs and foundations that play a critical role in financing immunization. It will be critical to map out these main players and gather their annual reports where available prior to embarking on primary data collection.

Lastly, it is to be noted that **vaccines that may be directly purchased in pharmacies (retailers) should be accounted under vaccination – and not under HC.5** as the purpose of vaccines is self-informative enough. For more on this, one may want to read the supplemental on prevention released by the OECD at [https://www.oecd.org/els/health-systems/Expenditure-on-prevention-activities-under-SHA-2011\\_Supplementary-guidance.pdf](https://www.oecd.org/els/health-systems/Expenditure-on-prevention-activities-under-SHA-2011_Supplementary-guidance.pdf)

### Data for non-specific type of spending and the need for splitting

Given the integrated nature of health service delivery especially in the public system, some expenditure for immunization activities are incurred as part of other health activities. These are in general referred as ‘non-specific expenditures’. Typical examples are salaries of health workers and operating costs of government health facilities (utilities, building maintenance, communications, etc), and use of vehicle fleet for immunization-related activities. On top of these, there are expenditures that are not directly associated with immunization services but that are nonetheless facilitating the provision of immunization services such as spending on general administration and management of the health sector. The non-specific expenditures should be disaggregated into the different disease and priority health areas using distribution keys to be developed based on utilization and relative intensity of use.

Box 1 below highlights two key items that need to be noted for immunization.

#### **Box 1: Distribution keys – Pitfalls to be avoided handling immunization related data**

Expenditure amounts are disaggregated by disease/program using split keys that are built on two pieces of information 1) a measure of service utilization—i.e. number of cases or reported visits by diagnosis and/or symptom as recorded by the routine health information system, coupled with 2) the intensity of resources used—assessed by either a costing study or the weighing of outpatient visits’ costs relatively to that of inpatient stays. For immunization, the data that would be obtained from the country health information system is usually by the number of doses administered rather than the number of visits that were made to get the doses in a particular period. Therefore, there is a need to convert the doses to visits using the national immunization schedule. For example, considering the schedule for the routine immunization for all children only, one can determine that there are roughly 8 visits needed per fully immunized child in a given country (see Table 2 below).

**Table 2: Country X's Immunization Schedule of Routine Recommended Vaccines for All Children**

Visit	Schedule	Vaccine
Visit 1	At Birth	BCG
Visit 2	6 Weeks	Penta (DTP, HEP B, HiB), Pneumococcal, Rota
Visit 3	8 Weeks	Polio (IPV)
Visit 4	10 Weeks	Penta (DTP, HEP B, HiB), Pneumococcal
Visit 5	14 Weeks	Penta (DTP, HEP B, HiB), Pneumococcal, Polio
Visit 6	20 Weeks	Polio
Visit 7	12 Months	Measles, Rubella
Visit 8	12 Months & 4 Weeks	Measles, Rubella

Hence, there is a need to deflate the number of doses administered in the reference period by 8 to determine the number of visits associated with immunization. However, this rule-of-thumb needs to be adjusted to correspond with the country-specific immunization schedule that may include a more extended set of vaccines – e.g. some vaccines are given in older age groups, are relevant only for specific regions, or in high-risk populations. The country immunization schedule will provide the necessary information about the age at which vaccines should be given, so that the number of visits required for full vaccination can be estimated. This provides the basis for estimating the non-specific spending lines that will go to routine immunization programs.

In addition, estimating the non-specific spending lines for routine immunization programs, there will be a component that has been consumed by supplemental immunization programs. This entails the cost of health workers' time who were engaged in the immunization campaigns. In absence of additional information around teasing out the time spent by health workers on campaigns, health accounts teams may use similar proportion used for estimating the salary spent on routine vaccines provided per visit.

In application of distribution keys to unpack the non-specific spending by activities and/or disease/priority area caution needs to be applied so as not to allocate spending from those spending sources that do not typically spend on the specific priority area. For example, for immunization households in most of low- and middle-income countries do not typically finance immunization in the public system. Therefore, distribution keys should NOT be applied to the household out of pocket expenditures that are nonspecific to tease-out immunization spending unless immunization services are typically provided through the private sector where households are known to be asked to pay for them.

Figure 2 illustrates two scenarios of specific and non-specific type of funding lines and how they would be treated in a health accounts exercise.

**Figure 2: Examples on how to estimate immunization expenditure from specific and non-specific spending lines**

**Scenario 1:** Ministry of Health spent \$10,000 on purchase of vaccines which was used for routine immunization at the health center

Specific spending

Expenditures to be directly mapped to the health accounts categories (HC.6.2.1 & FP.3.2.1.4 & HP.3.4.9)

**Scenario 2:** Ministry of Health spent \$20,000 on the salary of the health center staff who among other services provide immunization services

Non-specific spending

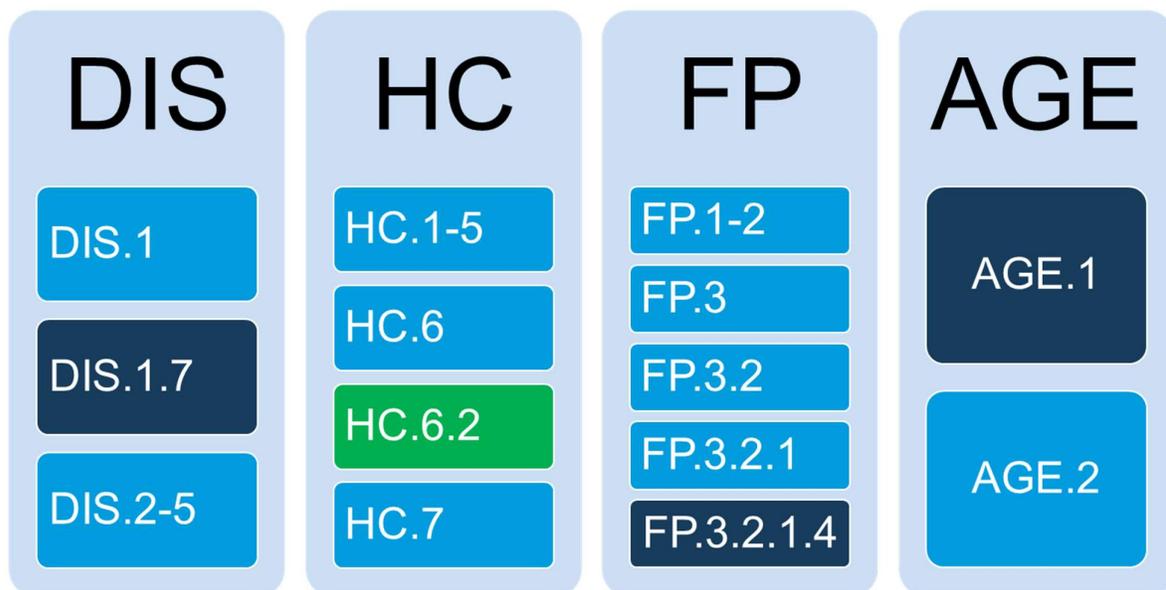
Spending to be distributed using allocation key developed by level using utilization and intensity of resource use (eg. unit cost). In the current example the health center treats only diarrhea and injuries on **outpatient** basis aside from immunization. Per the health information system (HIS) there were 15 outpatient visits for diarrhea and 25 for injuries. The HIS also indicates there 50 doses of immunization provided. The country immunization indicates that a child will need to visit a facility 5 times to be fully immunized.

In the event there is no other information such as a unit cost data by type of service, then the health accounts team can use distribution key per visits. This is based on an assumption that consumption of non-specific lines such as salary is the same across services per visit. Prior to calculating the ratios the immunization data need to be converted into visits by deflating it by the number of visits needed for a fully immunized child. For the current example: The 50 immunization doses reported will on average entail 10 visits. Calculating the shares, then the distribution to allocate the salary will be: 30% diarrhea, 50% injury and 20% immunization. Applying this to the salary spent: diarrhea outpatient=\$6,000, injury outpatient=\$10,000 and immunization=\$4,000.

## Mapping of Immunization spending to SHA

This section provides examples of immunization spending for common categories within the Function, Disease, Provider and Factors of Provision classifications. Notwithstanding, other categories within these classifications may, on rarer occasions, be also relevant for immunization spending. Figure 3 below summarizes the key SHA 2011 categories health accounts must bear in mind when it comes to the tracking of immunization spending.

**Figure 3: SHA classifications and categories of interest in tracking immunization expenditures**



### Function (HC) categories that apply to immunization spending

#### ***HC.6 Preventive care***

This category is used for spending whose purpose is to “avoid or reduce the number and severity of injuries and diseases”. The most common categories for preventive immunization spending are as follows:

#### ***HC.6.1 Information, Education and Counselling Programs***

Examples: Time and resources spent mobilizing the community and households and advocating for vaccination. This could include the cost of television and radio time, as well as the cost of hiring actors, etc.

#### ***HC.6.2 Immunisation programmes***

Immunisation programmes prevent the development of a disease, before or after exposure, through the use of pharmaceutical products, such as vaccines. This is primary prevention. It can involve consumption by specific individuals in continued programme operations within health

facilities, outreach including as part of school health programs or in a campaign. The expenditure involved in the consultation, both for the time and skills of the personnel and the purchase of the vaccine itself, should be accounted for. Here in order to understand the arrangements through which the immunization services are provided, there is a need for the health accounts team to further disaggregate the spending on immunization program between what is routinely provided and what is provided in a supplemental basis. In order to accommodate this, health accounts teams should create sub-classifications under the immunization programs—one for routine ([HC.6.2.1](#)) and another for supplemental immunization programs ([HC.6.2.2](#)).

#### ***HC.6.5 Epidemiological surveillance and risk and disease control programmes***

This entails type of spending such as time and resources spent following-up post-vaccination events and active cases of diseases that are prevented by vaccination.

#### ***HC.7 Governance and health systems financing administration***

This category should only be classified to immunization spending if the activity is directly attributable to improving the effectiveness and efficiency of immunization services. Examples include: formulation and administration of immunization-specific strategies and policies, development of immunization norms and protocols and licensing of immunization providers. This category will also include spending on maintaining the supply chain that has not been factored into the vaccine spending.

### **Provider (HP) categories relevant to immunization interventions**

Immunization services are delivered through public and private channels. Delivery strategies in the public sector include fixed facility (hospitals, primary health centres, and ambulatory centres), mobile teams, outreach, campaigns, child health days, schools, and antenatal care visits. In the private sector, delivery strategies include private clinics, faith-based facilities and non-governmental organizations (NGOs). As per the definition of immunization, the boundary for immunization spending encompasses activities primarily associated with vaccinating persons to prevent transition of infectious disease.

#### ***HP.1 Hospitals***

This category comprises general or specialty hospitals that provide immunizations to patients in outpatient departments.

#### ***HP.2 Residential long-term care***

This category would include providers of immunizations to residents of long-term care, for example facilities that provide immunizations for: seasonal influenza, pneumococcal disease, pertussis, tetanus, diphtheria, shingles, etc.

### ***HP.3 Providers of ambulatory care***

This refers to establishments primarily engaged in providing health care services to outpatients. This may occur through:

- *Routine facility-based service delivery*: Time and resources spent on the act of administering the vaccine to children or adults within the facility/compound.
- *Outreach service delivery*: Time and resources spent traveling to and from a place with the express purpose of vaccinating children or adults outside of the facility. This also includes school-based vaccination programs and mobile services provided by health center / post or clinic staff.

### ***HP.5 Retailers and Other providers of medical goods Providers of preventive care***

It is to be noted, however, that vaccines – that are obviously for preventive use – purchased in HP5 facilities will be mapped as HC.6.2. This as an exception to the rule, as already mentioned above in this document.

### ***HP.6 Providers of preventive care***

Establishments that provide preventive services as their principal activity should be classified as HP 6. This does not necessarily comprise all providers who provide preventive services e.g. health centres may also provide preventive services but they should still be classified as HP 3, if their primary activity is to provide ambulatory curative care. The provider classification of the health facility depends on the primary purpose of that facility. This category includes providers of individual and collective preventive services for patients. This category typically includes NGOs and civil society organizations providing immunization through routine or other delivery strategies, and IEC to mobilize the community and households and to advocate for vaccination.

### ***HP.7 Providers of health system administration and financing***

Includes time and resources spent on planning, budgeting, managing the immunization program at various levels. This would include the cost of time and resources spent on forecasting vaccine needs and procuring vaccines by staff from the central level. Costs may include time spent preparing Gavi applications and other applications for funding and technical support. Costs may include attendance at immunization-related meetings. It will include record keeping, monitoring and evaluation of immunization program data.

### ***HP.8.2 Rest of the Economy- All other industries as Secondary Providers of health care***

Includes school health vaccination programs provided in school by school employed health professionals. Or CHWs involved in IEC activities.

## Factors of Provision (FP) categories that apply to immunization

### ***FP.1 Compensation of employees***

This category includes compensation of employees either partly or fully dedicated to providing immunizations. It includes allocation of salaried labor to immunization-related activities used for immunization-related activities and any allowances (per diem and travel) paid to volunteer workers for immunization-related activities. Labor spent by a facility (or district level) staff to supervise subordinate or peer health or community workers providing immunizations would be included here.

### ***FP.2 Self-employed Professional Remuneration***

This category includes compensation of independent self-employed professionals either partly or fully dedicated to providing immunizations.

### ***FP.3 Material and services used***

The total value of goods and services used for the provision of immunizations should be included in this category. Materials include the cost of traditional and new vaccines ([FP.3.2.1.4](#)), vaccine injection and safety supplies (auto-disabled syringes, diluent, reconstituting syringes, safety boxes and other consumables ([FP.3.2.2.3](#))) used for the administration of vaccines, cold chain operation and maintenance.

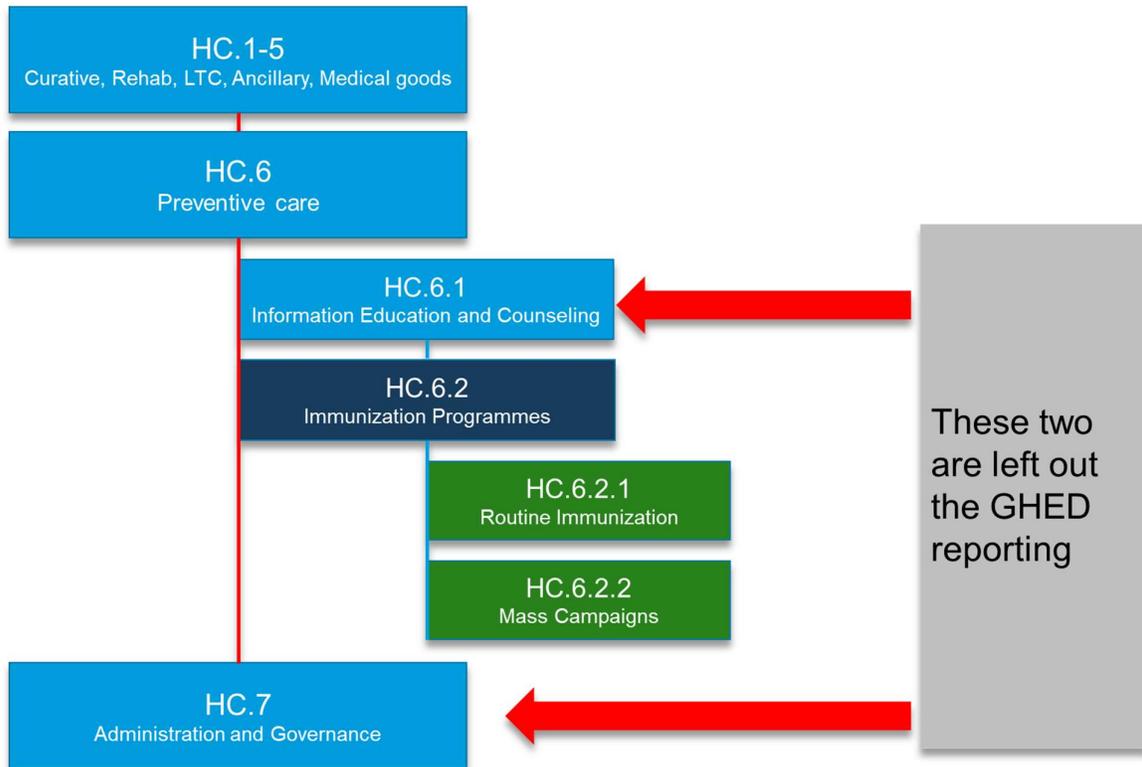
## Beneficiary classifications of interest: Age and Disease

This classification provides characteristics of the population that received immunizations. For example, immunization expenditure can be split by relevant age categories such as: infants, children, and adults.

In terms of disease, to the extent that the expenditure breakdowns for immunization provide the spending information by antigens, the country health accounts teams should in principle classify the spending to the corresponding diseases the respective vaccines provide protection against. However, for practicality a new category was added to the disease classification – vaccine preventable diseases ([DIS.1.7](#)), aiming at regrouping the diseases listed in the country recommended vaccine schedule. Exceptions to this are hepatitis that are separately reported under its own code DIS.1.8 and tuberculosis for countries where the disease is not part of the recommended vaccine schedule – in general not low- and middle-income countries. In either case this should be properly documented in the country health accounts report so that cross-country comparisons could be better understood.

Table 3 highlights common HC and HP categories, which Health Accounts teams will likely use to classify immunization expenditures. Figure 4 on the other hand provides an illustration of why it is that tracking immunization using HC.6.2 actually leads to an under-estimation of the actual spending. As a matter of fact, IEC and the central level administration of governance are de facto left out of HC.6.2 since being recorded under HC too. One could add them back to HC.6.2 using the cross with DIS.1.7

**Figure 4: GHED reporting underestimates the actual level of immunization expenditure**



**Table 3.** Examples of common Immunization expenditures and their HC and HP classifications – color coded.

Provider categories →	HP 1. Hospitals	HP 3. Providers of ambulatory health care	HP 4. Providers of ancillary services	HP 5. Retailers and other providers of medical goods	HP 6. Providers of preventive care	HP 7. Providers of health care system administration and financing	HP 8. Rest of the Economy	HP 9. RoW
<b>Function categories</b>								
<b>HC 1 - HC 5. Curative care to Medical goods</b>								
<b>HC 6.2.1 Immunization Programs-Routine</b>	<p><b>HC 6.2.1 x HP 1</b></p> <ul style="list-style-type: none"> <li>•A child receives a vaccination as part of a post-natal visit to the hospital</li> <li>•A mother receives a vaccination as part of the pre-natal visit to the hospital</li> </ul>	<p><b>HC 6.2.1 x HP 3</b></p> <ul style="list-style-type: none"> <li>•A child receives a vaccination as part of a post-natal visit to the health center/post or from staff sent on regular outreach</li> <li>• A mother receives a vaccination as part of the pre-natal visit to the health center/post from staff sent on regular outreach</li> </ul>		<p><b>HC.6.2.1 x HP5</b></p> <p>It is an <b>exception</b> that vaccines purchased from retailers can be mapped as HC.6.2 (and not HC.5) because the purpose of the spending is "known".</p>	<p><b>HC 6.2.1 x HP 6</b></p> <p>Routine Immunization outreach service provided by an NGO</p>		<p><b>HC.6.2.1 x HP.8</b></p> <p>Routine school-based vaccinations conducted by school employed health professional</p>	

<p><b>HC 6.2.2 Immunization Programs-Supplemental</b></p>	<p><b>HC 6.2.2 x HP 1</b> Hospital staff mobilized to provide an immunization campaign</p>	<p><b>HC 6.2.2 x HP 3</b> Health center/post staff mobilized to provide an immunization campaign</p>			<p><b>HC 6.2.2 x HP 6</b> Immunization campaign organized by an NGO or organized and provided by the Ministry or sub-national health offices</p>		<p><b>HC.6.2.2 x HP.8</b> Immunization campaign exceptionally organized by the Ministry of Defence for either its soldiers or a targeted population they serve.</p>	
<p><b>HC 7. Gov., health system &amp; financing</b></p>						<p><b>HC 7 x HP 7</b> Expenditures by the National Immunization Program to update immunization programs / schedules <b>This would be retraced using a cross with DIS.1.7</b></p>		

	<p>Common codes for immunization spending</p>		<p>May, but unlikely to apply to immunization spending</p>
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# Publication and Use of Immunization spending

## Published data and Indicators

Similarly, to other data collections and analysis, the primary purpose of immunization spending analysis is to inform policy and planning. It is therefore critical to package the results of the spending analysis in a way that is easily digestible for program managers and other key stakeholders. The production tool and the accompanying health accounts analysis tools can help with packaging of the results. In order to make a fully informed decision around immunization programming, it is critical for the health accounts exercise analyses to disaggregate the spending data between what used for routine immunization purposes from that of ones provided to supplement the routine provisions. These will allow planners and other key stakeholders, based on the information to explore mechanisms to strengthen the routine systems.

**Table 4: Immunization series and indicators released on WHO's Global Health Expenditure Database**

### **Indicators**

1. Expenditure on Immunization Programmes as % Current Health Expenditure (CHE)
2. Domestic General Government Expenditure on Immunization Programmes as % of Domestic General Government Expenditure on Health (GGHE-D)
3. External sources of funding on Immunization Programmes as % of External Health Expenditure (EXT)

### **Variables**

1. Immunization Programmes
2. Domestic General Government Expenditure on Immunization Programmes
3. External sources of funding on Immunization Programmes
4. Domestic Private Expenditure on Immunization Programmes

## Data quality review

At completion of the health accounts, it is good practice to review the quality of the immunization related expenditure data produced. With the aim of improving the quality of country HA teams' mapping, WHO has further strengthened the automation of the quality checking with the introduction of additional disease-related blockings and warnings in the new HAPT<sup>i</sup>. That said, first and foremost, country teams would need to ensure that the following formulas in Figure 5 are met – and if not, provide data users with an explanation as to why it would not be the case in their country.

**Figure 5: Data quality checks linked to immunization spending (very minimal ones)**

1.  $HC.6.2 > 0$  ;  $DIS.1.7 > 0$  ;  $FP.3.2.1.4 > 0$
2.  $HC.6.2 \leq DIS.1.7$  ;  $FP.3.2.1.4 < HC.6.2$
3.  $HC.6.2 \times FP.3.2.1.4 > 0$
4.  $DIS.1.7 \times FP.3.2.1.4 > 0$
5.  $HC.6.2 \times (FS.1+FS.3) > 0$
6.  $DIS.1.7 \times (FS.1+FS.3) > 0$
7.  $HC.6.2 \times AGE.1 \geq HC.6.2 \times AGE.2$
8.  $HC.6.2 \times (FS.1+FS.3) < 0$  for Gavi countries

<sup>i</sup> At the time of writing, the “new” HAPT is not available for country use; it is still in a developmental stage.

Those means that it is highly unlikely for a country that there was no amount at all incurred for vaccines, immunization programmes or vaccine preventable diseases as part of its spending on pharmaceuticals, health care functions or disease – namely, FP.3.2.1.4<sup>i</sup>, HC.6.2 and DIS.1.7 amounts are each expected to be greater than zero. Furthermore, one would expect at least a minimal vaccine spending incurred for vaccine preventable diseases and immunization programmes – i.e. DIS.1.7 and HC.6.2 crossed with FP.3.2.1.4, respectively, should be non-null. On this, one would not expect vaccines incurred for something else than vaccination programmes – hence the reported amount for FP.3.2.1.4 should be lesser than the one reported for immunization programmes. Similarly, the spending against immunization programmes would be lesser than the one against vaccine preventable diseases<sup>ii</sup>.

Also, it could be the case that domestic public sources of funding (FS.1 and FS.3 for, in short, government own resources and social health insurance) were overlooked when it came to immunization spending either as a result of a partial data collection and/or because of yet-to-be-improved capabilities in splitting non-specific expenditure lines. Indeed, as explained above in this document, the government may have specific funding lines dedicated to the national immunization program, and, at the very minimal, would be covering for the salary of its staff at the central level<sup>iii</sup> alongside with that of the service delivery health workforce involved in immunization related services in health facilities.

Furthermore, the reported amount on immunization programmes on the less than 5-year old population (HC.6.2 x AGE.1) should theoretically exceed that of the more than 5-year one. Here, good to bear in mind that these are questions applicable in “normal” situations. Countries are given a chance to explain why is it that their context diverge from the expected. For instance, a mass campaign in a particular year that would involve more adults. With COVID-19 it will soon be the case that the spending on immunization on the more than 5-year old population far exceeds that on the less than 5-year old<sup>iv</sup>.

Lastly, in aid-recipient countries, the health accounts should retrace the spending from external sources DIS.1.1 x (FS.2+FS7)<sup>v</sup>, and very specifically from Gavi (code FS.RI.1.5.2.7), for those using the FSRI classification, as a funding entity.

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<sup>i</sup> However, it is not rare, this usually for country teams in their first year of producing disease/programme disaggregated health accounts that all drugs are rather mapped as FP.3.2.1.nec – i.e. pharmaceuticals not specified or unknown. WHO discourages such practices as if health accounts results were to be used for decision making those, not granular enough, would be useless. Indeed, depending on the setting, it could be policy relevant to measure the spending on vaccines as a total or relatively to what each funding source is contributing to. And, this is the basis of comparison/cross-checking with other resource tracking efforts – e.g. UNICEF/WHO JRF.

<sup>ii</sup> It is to be noted, however, that pharmaceuticals for preventive use can be a significant expenditure item (e.g. contraceptives, for example) and it may well be policy relevant to monitor their use. In such as case, a country-specific subcategory of HC.5 for preventive medical goods may be recommended which can be aggregated with all or part of HC.6 categories to provide a more extensive memorandum item of preventive expenditure

<sup>iii</sup> That of the people involved with family planning at the Ministry of Health – e.g. adapting international policies.

<sup>iv</sup> Will less likely be LMICs though as at the time of writing these lines less the average vaccination coverage is less than 2% in Africa for instance.

<sup>v</sup> Briefly, FS.2 and FS.7 stand respectively for external monies channelled through the government or directly implemented by partners. For more on these, kindly refer to the SHA manual as in some instances these “direct implementers” could also be the government.

Figure 6 below provides an illustration of some of the mapping errors retrieved in the health accounts received in the past couple years by WHO<sup>i</sup>. On the 65 countries that have ever reported immunization spending as part of health accounts produced using HAPT<sup>ii</sup>, 6 and 9 were respectively reporting no spending at all incurred on immunization programmes and vaccine preventable diseases – obviously an error, this cannot and would not reflect the actual service delivery pattern of any country. Furthermore, 20 reported no spending on vaccines – we believe as a result of the spending on pharmaceuticals being lumped under FP.3.2.1.nec. And, for 22 there was no government spending on immunization, this being reflective of yet-to-be-improved country expertise in handling non-specific funding lines.

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<sup>i</sup> Cells colored in red refers to points of particular attention (not all “errors”, depending on the country’s context).

<sup>ii</sup> The health accounts production tool allows cross-classification comparisons more easily. The OECD countries that do produce HC classification details would not be included here, as not necessarily crossed by funding source (HCxFS) and/or without any mention of FP, DIS or AGE etc.

Figure 6: Example of errors retrieved in country produced health accounts received by WHO

Data quality control for expenditure on immunization programmes														All	All	All
Quality control	Country	HC62	DIS17	FP3214	DIS17xHK	HC62xFP3214	DIS17xFP3214	HC62xGGHED	DIS17xGGHED	HC62xAGE1...	HC62>FP3214	Mappin...	Mapping...	HC62xEXT	Gavi status	
	Afghanistan															
	Armenia															
	Benin															
	Bhutan															
	Bosnia and Herzegovina															
	Botswana															
	Burkina Faso															
	Burundi															
	Cabo Verde Republic of															
	Cambodia															
	Cameroon															
	Chad															
	Comoros															
	Congo															
	Costa Rica															
	Côte d'Ivoire															
	Democratic Republic of the Con...															
	Djibouti															
	Egypt															
	Ethiopia															
	Gabon															
	Gambia															
	Ghana															
	Guinea															
	Guinea-Bissau															
	Guyana															
	Haiti															
	India															
	Iraq															
	Jordan															
	Kenya															
	Kyrgyzstan															
	Lao People's Democratic Republic															
	Liberia															
	Malawi															
	Mali															
	Mauritania															
	Mauritius															
	Micronesia (Federated States of)															
	Myanmar															
	Namibia															
	Nepal															
	Niger															
	Nigeria															
	Papua New Guinea															
	Philippines															
	Samoa															
	Sao Tome and Principe															
	Senegal															
	Seychelles															
	Sierra Leone															
	South Africa															
	South Sudan															
	Sri Lanka															
	Sudan															
	Tajikistan															
	Togo															
	Tonga															
	Trinidad and Tobago															
	Tunisia															
	Uganda															
	United Republic of Tanzania															
	Viet Nam															
	Zambia															
	Zimbabwe															
	<b>Total</b>	<b>59</b>	<b>56</b>	<b>45</b>	<b>24</b>	<b>40</b>	<b>43</b>	<b>43</b>	<b>49</b>	<b>30</b>	<b>36</b>	<b>20</b>	<b>18</b>	<b>51</b>	<b>47</b>	

While reporting HA results in standardized ways is important, to catalyze policy use of immunization expenditure information HA teams should explore through additional analysis how the findings relate to policy questions of interest to different immunization stakeholders in government, donor agencies, civil society, and the media, and use diverse methods to communicate key insights from such analyses. Table 5 provides some examples of key questions immunization resource tracking information from HA can address.

**Table 5: Key policy questions that can be explored using HA data**

Questions	Analytical method/relevant SHA classifications
<b>TOTAL RESOURCE ENVELOPE FOR FAMILY PLANNING</b>	
<b>Has immunization spending (for the less than 5-y old as well as a share of country health spending) – increased or decreased with time?</b>	Explore trends in immunization spending in absolute terms and as a share of current health spending over time using multiple years of HA data
<b>FINANCING</b>	
<b>Who is financing immunization expenditure?</b>	Examine FS.RI and FS classifications to explore the share of total spending financed by external resources, government resources, and private resources; and see whether this distribution of financing has changed over time.
<b>CONSUMPTION</b>	
<b>Does spending on immunization programs align with existing plans and strategies? And is there sufficient domestic investment in treatment of immunization?</b>	Use FS x HC to explore who are the key financiers of different types of immunization services/interventions.
<b>PROVISION</b>	
<b>How much are we spending on staff versus vaccines for producing immunization services?</b>	Examine distribution of spending across FP classification.
<b>Who is delivering immunization services? Is private provision being crowded out? Are most services consumed at secondary and tertiary facilities?</b>	Explore distribution of immunization spending across HP classifications.

## References

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- <sup>7</sup> Ozawa S, Clark S, Portnoy A, et al. Estimated economic impact of vaccinations in 73 low- and middle-income countries, 2001-2020. *Bull World Health Organ.* 2017;95(9):629-638. doi:10.2471/BLT.16.178475.
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