

Consultancy services for conducting an evaluation of immunisation coverage monitoring methodology and process

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FINAL REPORT

Interviews component

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Abbreviations

DHS	Demographic and Health Survey
DQA	Data Quality Audits
DSS	Demographic Surveillance System
DTP	Diphtheria, Tetanus and Pertussis vaccine
DPT3	Third dose of DTP vaccine
EHG	Euro Health Group
EPI	Expanded Programme of Immunisation; also EPI cluster survey (WHO).
HIC	High income country
HIS	Health Information System
HMN	Health Metrics Network
JRF	Joint Reporting Form
LATH	Liverpool Associates in Tropical Health
LQAS	Lot Quality Assurance Sampling
LSTM	Liverpool School of Tropical Medicine
LIC	Low-income country
LMIC	Low- and middle-income country
MCH	Maternal and child health
MIC	Middle-income country
MICS	Multi-indicator Cluster Survey
PHC	Primary Health Care
RFP	Request for proposals
SCIH	Swiss Centre for International Health
STI	Swiss Tropical Institute
TOR	Terms of reference
UNICEF	United Nations Children Fund
WHO	World Health Organisation

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Executive summary

Good quality immunization data are crucial for an accurate monitoring of progress towards immunization related targets. The accuracy of immunization data has raised serious concerns. Immunisation coverage figures from various sources referring to the same similar geographical area or target group are often inconsistent.

The survey aims at describing the perceptions and experience of selected immunisation stakeholders in relation to the use, quality and ways to improve immunisation coverage data.

A web-based questionnaire was elaborated, piloted and sent out to around 250 institutions involved in immunisation programmes including funding and research agencies, health policy decision makers, technical experts, and managers of immunisation programmes in 80 countries.

This report presents data from 55 responses, mainly from EPI managers and WHO / UNICEF offices at country level. Further information expected from global funding agencies, research institutions and technical organisations will be included in the final survey report. Findings have to be interpreted with caution because responses may not necessarily reflect true opinions or facts.

Administrative data is the most common source of data used followed, in decreasing frequency, by WHO estimates, DHS, MICS, EPI, DSS and CWIQ. Data, regardless the sources, was mainly used for programme monitoring, and less frequently, for reporting decision making and in a much lesser proportion for research. Programme performance was monitoring using immunisation data in a number of ways, including comparing coverage in time and places, triangulating with other data and as a proxy for health services performance. Immunisation data was shared within the respondents' organisations, but almost 60% stated that this was shared also outside their own organisation. Additional sources of information were mainly disease surveillance data and to a lesser extent population based data (e.g. censuses).

Data quality was a concern. DHS, WHO estimates, EPI surveys are judged to provide the best quality data; followed by administrative sources and countries' estimates. Several key factors were identified, including denominator and data management issues at country level.

WHO, UNICEF and GAVI were perceived as very relevant stakeholders and capable to have an impact in the quality of data and coverage levels. It was noticeable that one third of respondents did not know about the HMN.

Performance based funding was perceived as a good approach; however its technicalities were of much concern (e.g. which indicators, which level of accuracy, availability of data to support it).

Respondents provided a good sample of possible interventions to improve the quality of data, including support and capacity building at peripheral levels, standardisation of data management, analyses and dissemination procedures and data quality audits and self-assessments. The latter two were seen not only (or

mainly) as ways to measure data accuracy but as opportunities to create awareness about data quality issues. Positive experiences were reported.

Some recommendations were issued, taking into account that they are based on a small number of responses to the survey and that final recommendations should be harmonised with the findings of the other two components of this evaluation (the statistical and the literature review components). First, administrative reporting system should be the main focus of the initiatives to improve the quality and availability of data worldwide; secondly, GAVI, with other Global Health Initiatives, should address issues of concern related to performance based funding, among others the validity (and future) of current methods to estimate data accuracy, the quantity and quality of information needed to decide on the performance of a programme and the fairness and transparency of performance based funding. Finally, the main immunisation stakeholders, likely led by WHO, in collaboration with HMN, should consider establishing (or better disseminating) consensual standards for the production, assessment, management, analyses and use of (immunisation) coverage data for measuring health systems performance.

1 Background

The mission of the GAVI Alliance is to make a major contribution to the two-thirds reduction in under-five mortality targeted by the international community in the Millennium Development Goals¹. Immunization coverage is a key health sector indicator for monitoring health system performance and progress towards reaching international development targets (e.g. MDG4)². Good quality immunisation data is essential in order to accurately monitor progress towards immunisation related targets. However, there are raising concerns and growing evidence questioning the accuracy of immunisation data. Furthermore, there are currently coexisting a great variety of sources of immunisation data: administrative data, official country coverage estimates, WHO/UNICEF estimates and results from different types of surveys. Immunisation coverage statistics from these sources, referring to the same geographical area, time period, antigen and target group often do not coincide. In the era of global health initiatives and performance based funding, immunisation stakeholders need reasonably precise, accurate and consistent data to take strategic, programmatic and financial decisions.

As recorded in the TORs, the general **objective** of this consultancy is:

- to contribute to improving the quality of immunization coverage data and the performance of immunisation related information management systems at sub-national, national and international levels;

(GAVI RFPs²)

and as further developed in the amendment to the technical proposal:

- to provide a robust base upon which to build an international consensus on the best practices to estimate immunisation coverage and ways of effectively using immunisation coverage figures.

(SCIH/LATH amendment³)

The objectives of the request for proposal, how have they been addressed and the conceptual framework for this consultancy are all presented in a separate synthesis document.

The interview component focuses on three areas:

- experience with immunisation coverage information and reporting;
- perceptions on WHO, UNICEF and GAVI roles in the arena of immunisation data;
- views and experience in relation to interventions aiming at improving the quality of data.

This report presents preliminary findings from the questionnaire sent to 260 potential respondents from global, regional and country-level immunisation stakeholders.

2 Methods

A questionnaire was designed, pilot tested and distributed to a wide range of immunisation stakeholders. This was a web-based questionnaire survey using the SurveyMonkey (Portland, Oregon USA) online tool. The questionnaire contained closed pre-codified questions, open-ended questions and matrix questions, as appropriate. See Annex for the list of questions and pre-codified answers.

The questionnaire was developed once the first results from other study components (statistical analysis and literature review) became available. A comprehensive list of over 100 questions was prepared and discussed among the implementing partners and GAVI. Questions were then allocated to different respondent groups and the questionnaire was simplified to contain the 20 to 30 most relevant questions that could be answered in less than 20 minutes. The questionnaire was pilot-tested among partner institutions and by selected immunisation experts, finalised and distributed.

A list of 260 respondents was established in collaboration with GAVI and questionnaires were sent out starting 10th November 2008. Based on past experience from similar surveys a 40-50% return rate was anticipated. Care was taken to include the widest possible range of immunisation stakeholders and of producers and users of immunisation coverage data. No specific sampling techniques were applied as issues of representativeness were beyond the scope of the interview survey. However, it was attempted to have sufficient numbers of respondents in each of the main respondent groups (funding agencies, technical organizations, research institutions, country-level institutions) to allow a sound analysis. Respondents were selected from several types of organisations, as follows:

- International development organisations (GAVI Alliance; Global Fund to fight AIDS, Tuberculosis and Malaria; World Bank; UNICEF; UNFPA; Bill and Melinda Gates Foundation) in their capacity as funding agencies;
- Bilateral aid agencies (European Commission Directorate DG Health and Consumer Protection, Danish International Development Agency; Norwegian Agency for Development Cooperation; USAID) in their capacity as funding agencies;
- Research institutions including the Centres for Disease Control and Prevention (CDC); Johns Hopkins Bloomberg School of Public Health; PATH; London School of Hygiene and Tropical Medicine; Norwegian Institute of Public Health; European Centre for Disease Prevention and Control (ECDC); University of California at Berkeley Division of Epidemiology; the Routine Health Information Network (RHINO); the UK Health Protection Agency, Immunisations Dept.; Statens Serum Institut Denmark, JSI at the University of North Carolina at Chapel Hill;
- Technical organisations involved in immunisation programmes including the WHO Department of Immunization, Vaccines and Biologicals; WHO Measurement and Health Information Systems; Health Metrics Network; Organisation for Economic Cooperation and Development (OECD); International Red Cross; American Red Cross; CARE International; Rotary International;
- Members of networks and initiatives such as the Global Framework for Immunization Monitoring and Surveillance; Health Metrics Network partners;

PneumoADIP and Hib Initiative; Malaria Vaccine Initiative; the WHO Strategic Advisory Group of Experts (SAGE); the Global Polio Eradication Initiative, the WHO Measles Initiative:

- Country-level institutions based on the GAVI Alliance country database of EPI Managers and UNICEF and WHO country offices for all 72 GAVI eligible countries.

Questionnaires distributed, by respondent group:

Funding agencies:	29 respondents
Technical organisations:	15 respondents
Research institutions:	15 respondents
Country-level institutions:	197 respondents

Responses received (25 Nov 08):

Funding agencies:	2 responses
Technical organisations:	1 response
Research institutions:	4 responses
Country-level institutions:	47 responses

Respondents were sent email messages that contained a link to a website that presented the online questionnaire. Responses analysed in this report have mainly come from country-level institutions. Once more responses have been received, further analysis will allow the intended comparison of results between respondent groups.

The main problems encountered included:

- outdated email address information in databases: telephone follow-up was used to identify and correct respondent information, where necessary;
- duplicate questionnaires: some respondents inadvertently returned the questionnaire twice. Duplicate questionnaires were discarded if sent by the same person;
- questionnaires were only provided in English: some respondents, mainly from French and Russian speaking countries, were unable to complete the questionnaire;
- difficulties with internet access at the work place for some respondents in developing countries: telephone follow-up found that a certain number of respondents had difficulties accessing online web content at their work places; in most of these cases alternative solutions could be found (internet café or access to the internet from private computers);
- some institutions provide only limited web access for reasons of internet security (blocking of JavaScript which is needed to display and fill the online questionnaire): in these cases the questionnaire was distributed as an interactive form in PDF format sent as an email attachment; once filled and returned the data was manually entered into the database by EHG staff.

Intensive follow-up activities were initiated from 20th November 2008 onwards in order to increase the response rate. Survey staff at EHG headquarters used phone calls to contact respondents or their institutions and to issue reminders, to help with technical problems, or to identify alternative respondents. By 25 November 2008 over 50 responses had been received.

Returned questionnaires are collected by the hosting company which also maintains the results database on their servers and generated the basic analyses. To undertake more detailed analyses, responses are downloaded in either a spreadsheet or a relational database format.

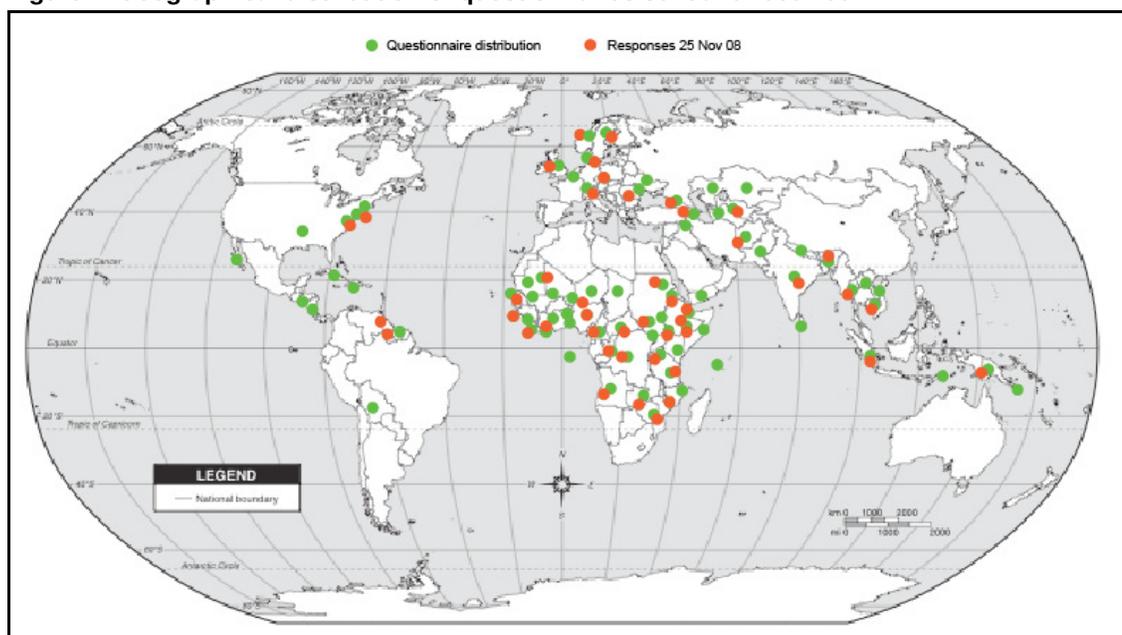
Given the still low number of questionnaires received from certain categories of respondents no comparison of responses between groups has been attempted so far.

3 Findings

3.1.1 Survey profile

The current report presents the findings from the first wave of questionnaires received. The figure below shows the geographical distribution of questionnaires sent (green dots) and received (red dots).

Figure 1. Geographical distribution of questionnaires sent and received.



Out of the 55 filled questionnaires received, 47 (85%) were from country-level institutions, 4 (7%) from research institutions, and the rest (4 responses) from funding agencies and technical organisations.

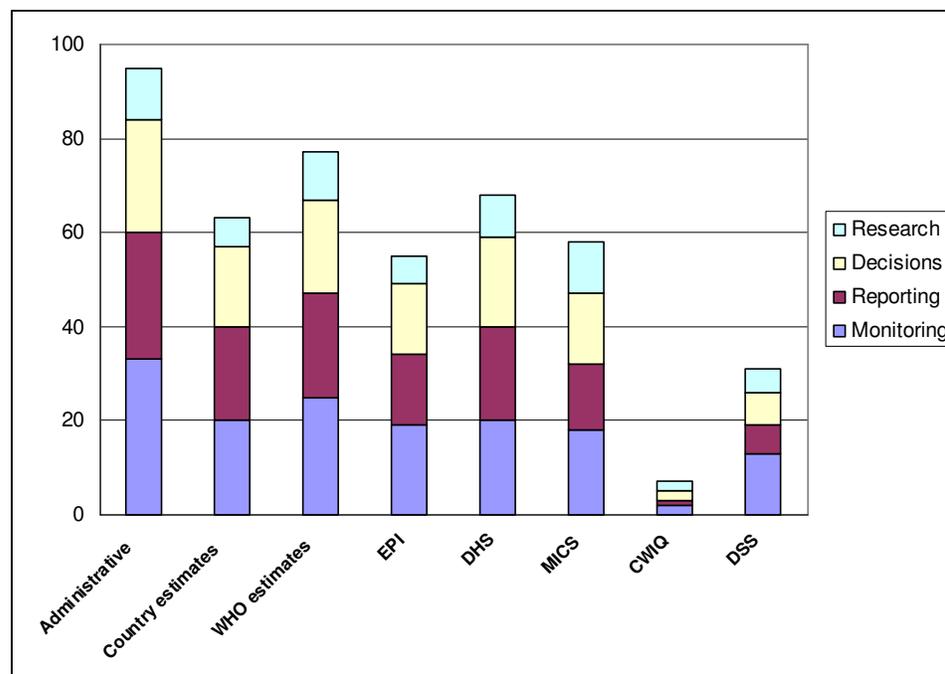
The respondents of the first wave of questionnaire returns were in their majority country-level EPI managers, as well as staff of local WHO and UNICEF offices.

3.1.2 Data use

They are **frequent users of immunisation coverage data**: 42% of the respondents dealt with immunisation coverage data daily (22%) or weekly (20%); a cumulative 90% of respondents used immunisation coverage data at least once per month.

With regard to **data sources**, country administrative data was the most widely used source (mentioned 21% of times), followed by WHO estimates (17%) and DHS (15%), see Figure 2, below.

Figure 2. Sources of immunisation data mentioned for different purposes (number of times mentioned).



Respondents were asked to indicate, for each data source separately, **for what purpose** coverage data was used: whether for programme monitoring, dissemination of coverage information, decision making, research or other uses. Data from all sources is mainly used for programme monitoring (mentioned 33% of times), and less frequently for reporting and decision making (27% and 26% respectively) and even less frequently for research (mentioned 13% of times).

The use of coverage data for programme-specific purposes was further detailed in comments provided by respondents. A number of respondents described how data was used to "identify low coverage areas to reach the unreached population and for organising special interventions such as campaigns, crash programmes".

Respondents were asked whether, and if yes in which way, immunisation coverage data was **used to monitor health systems performance** (use of coverage as an indicator for health systems performance). Almost all respondents answered in the affirmative, and produced an extensive commentary on the issue. Five areas of application were identified:

(A) Health outcomes monitoring

Coverage data was used to measure the impact of vaccination on vaccine preventable diseases in the context of control of communicable diseases programmes and MCH programme monitoring, and complementing other indicators such as maternal mortality and infant mortality. Immunisation coverage was also frequently used as an indicator of access and utilisation of health services.

(B) Measure and compare performance between geographical areas

Immunisation coverage data was frequently used to compare programme performance at sub-national levels (district, region or province), at the

national level (comparison between countries), and at the supra-national level (comparing immunisation programme performance between continental regions).

(C) Monitoring of development programmes

Immunisation coverage data was also reported to be used to measure progress of large-scale externally funded development programmes.

(D) Monitoring of health services performance

Respondents provided a large number of examples of how immunisation coverage data was used to assess and monitor PHC service delivery in countries ("the first entry point of public health service delivery is immunisation and, if there is no immunisation, no doubt, other services are not present"), progress in introducing basic standard packages of health services, and especially the strengthening of MCH and community-based integrated services.

Respondents pointed out that immunisation coverage data reflects performance of primary health care services in general especially, but not exclusively, at the peripheral level (respondents frequently mentioned performance of health centres, at district and at regional levels). Vaccine coverage was used as a proxy indicator for access, utilisation and availability of health services; and for quality of health care services because "immunization is one of the best [ways] to reinforce health system towards reaching child survival and MDG goals".

Finally, it was stated that immunisation coverage monitoring allowed to follow up on integrated MCH care delivery, both facility-based and through outreach services, and provides an indication of "whether vulnerable and disadvantaged groups are having access to basic services".

(E) Immunisation coverage data used for policy monitoring and to support advocacy programmes

A number of respondents pointed out that, at national level, immunisation coverage indicators were used in social policy monitoring, in measuring progress towards MDGs, and as an indicator to assess the rationality and effectiveness of health policies: a country's ability to cover "all health areas and all targets" (mobile populations, displaced and refugee populations, people living in remote areas), to achieve rational use of resources and the best possible level of quality of health care.

Immunisation coverage information helped governments to determine and manage priorities. "Coverage [rates] are presented to the State Governors as advocacy tools. The President is also informed of good and bad performing States". In some countries DPT-HepB-Hib3 coverage was used by health sector officials as an indicator to monitor the Poverty Eradication Action Plan (PEAP) and the Health Sector Strategic Plan (HSSP).

Finally, effective use of coverage information was also a sign of managers' ability to use these data in planning and strengthening of the health care system.

Respondents were asked with whom they normally **share immunisation coverage data**. From the options provided, it was found that information on immunisation coverage was mainly shared with (or circulated among) immediate colleagues, members of institutional working groups, staff within the ministry department in charge of immunisation services and, occasionally, with participants in seminars and workshops. Publication of data and dissemination of information to recipients outside of the immediate work environment were of less frequent. However, grouping all responses that had to do with sharing of information outside respondents' own organisation, 59% of times respondents stated that data was shared in that wider audience. Some WHO country offices specifically mentioned meetings and workshops and national level and annual reports as important dissemination channels of immunisation information.

At the national level Inter-agency Coordination Committees play an important role in information dissemination to sub-national units, especially to health districts, and even to health facilities. In many countries the ICC also seems to function as a central information hub and dissemination point to senior management in Ministries of Health and other involved government institutions, and to partner institutions such as WHO and UNICEF.

Another question asked waht **other sources of immunisation-related data** were used. Almost one third of the respondents said they regularly used epidemiological surveillance data; 19% mentioned updated national census and demographic estimates, and burden of disease data, other national censuses and data from vital registers were used less frequently, as described in detail in the table below.

Table 1. Additional sources of immunisation-related information.

Sources of information	n	%	The total number of responses is greater than the number of respondents because more than one
Updated national censuses	29	19%	
Older national censuses (if no up-to-date information available)	17	11%	
Data from vital registers (e.g. births, mortality, migration registers)	14	9%	
Demographic estimates (e.g. for mortality)	29	19%	
Burden of Disease data (including DALY)	18	12%	
Epidemiological surveillance data (e.g. for vaccine preventable diseases, incidence/prevalence data)	42	27%	
Don't use other immunization-related data	0	0%	
Other immunisation related data (please specify)	5	3%	
Total number of responses (n)	154	100%	

option in this question could be ticked.

In terms of **aggregation levels**, 68% of respondents used national or sub-national immunisation data. Regional and global figures were mentioned 15% and 17% of times. The most relevant disaggregation factors for respondents were age (mentioned 40% of times), social factors (20%), gender (15%), economic factors (e.g. income) 11% and less frequently ethnic group (6%). EPI Managers also reported to make extensive use of sub-national disaggregated data (mainly by district or province).

The Joint Reporting Form was known by all respondents and was considered very useful and valid by 89% of the respondents and partially useful by the other 11%.

Respondents were asked to indicate which **antigens'** coverage level they were more interested in or used more frequently. A group of antigens was mentioned between 13% and 17% of times including DTP (the most frequently mentioned), OPV, BCG, Measles, Hepatitis B and Tetanus toxoid. Coverage data was less frequently used for Hib (9%), Pneumococcus (3%) and Rotavirus (1%).

The final question concerning the use of immunisation coverage asked whether the **use of immunisation coverage data at local level** (by local health institutions and administrations) improved in recent years or not. Of the 22 people who answered this question, 15 respondents answered "Yes" and 7 answered "No". Those answering 'Yes' indicated improvements in four areas: patient follow-up, local performance monitoring, local planning, and local information systems. Examples included:

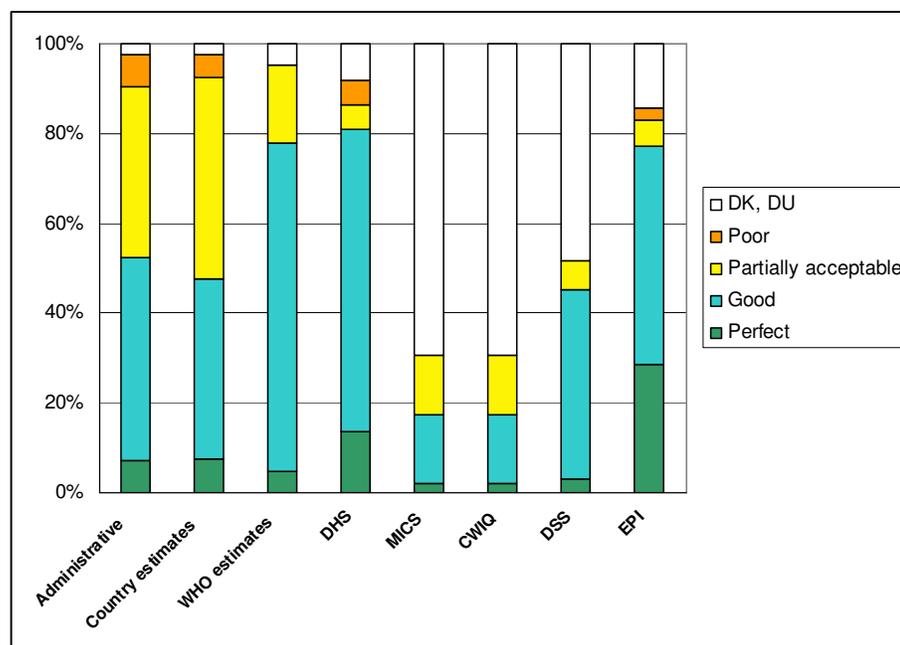
- immunisation coverage data has been used to decrease drop-out rates (drop-out monitoring and tracing);
- immunisation coverage data was routinely used in local performance appraisal;
- monitoring of coverage improved data quality and accuracy, and timely reporting in general;
- immunization coverage data allowed local teams "to elaborate realistic annual micro-planning to meet national and international objectives and goals".

3.1.3 Data quality

Respondents were asked about their **perception of the quality of immunisation coverage data from different sources**. Answers are depicted in Figure 3.

Few respondents attributed the qualification of "perfect" to any data source; the 'most perfect' sources were the EPI cluster surveys, followed by DHS and country estimates. Figure 3 suggest that there would be three groups of sources in terms of perceived quality: DHS surveys, WHO estimates and EPI surveys (in the range of 77% up to 81% for 'perfect' plus 'good' categories), followed by administrative data, country estimates and DSS (in the range of 45% up to 52%) and finally MICS and CWIQ surveys (both with 17%), although the latter two were also the least used and known. Not a single respondent attributed the category of 'poor' to WHO estimates.

Figure 3. Perceived quality of different sources of immunisation coverage data.



DK: don't know. DU: don't use.

In their comments respondents point out that quality of data would vary between countries due to the different methods used to elaborate the administrative and the official country estimates. Respondents said that routine data is often especially good for EPI (but may be less good for other health programmes). Government officials from a HIC reported that "the [...] childhood vaccination database is based on general practitioners' reimbursements with the public health insurance and is [therefore] believed to be of high quality".

A follow-up question focused on the perceived **validity of countries' official immunisation coverage estimates**. Here over half of all respondents indicated that they believed that coverage estimates were only partially correct and the rest that they were highly valid. In their comments respondents pointed at the following three problematic areas:

Low data quality

Respondents acknowledged inconsistencies between reported high coverage, the number of unvaccinated children and drop-out rates. Estimates based on data from routine health information systems are often "unreliable and incomplete". It was also stated that "countries rely on GAVI support and mostly politicise their data by producing some type of figures which are not accurate".

Denominator problems

The issue of wrong or outdated denominator data come up in many responses. Denominator data were often unreliable due to deficient registering systems. "The accuracy of data provided by the National Bureau of Statistics has been challenged, but in many countries no alternative has been found".

Inappropriate indicators and processes to estimate coverage

Some respondents commented that the process of how governments produce "official" estimates is not clear and that in some countries there was no consensus on what the exact definition of "immunization coverage" was (examples given included concepts such as 'full coverage', 'timely coverage').

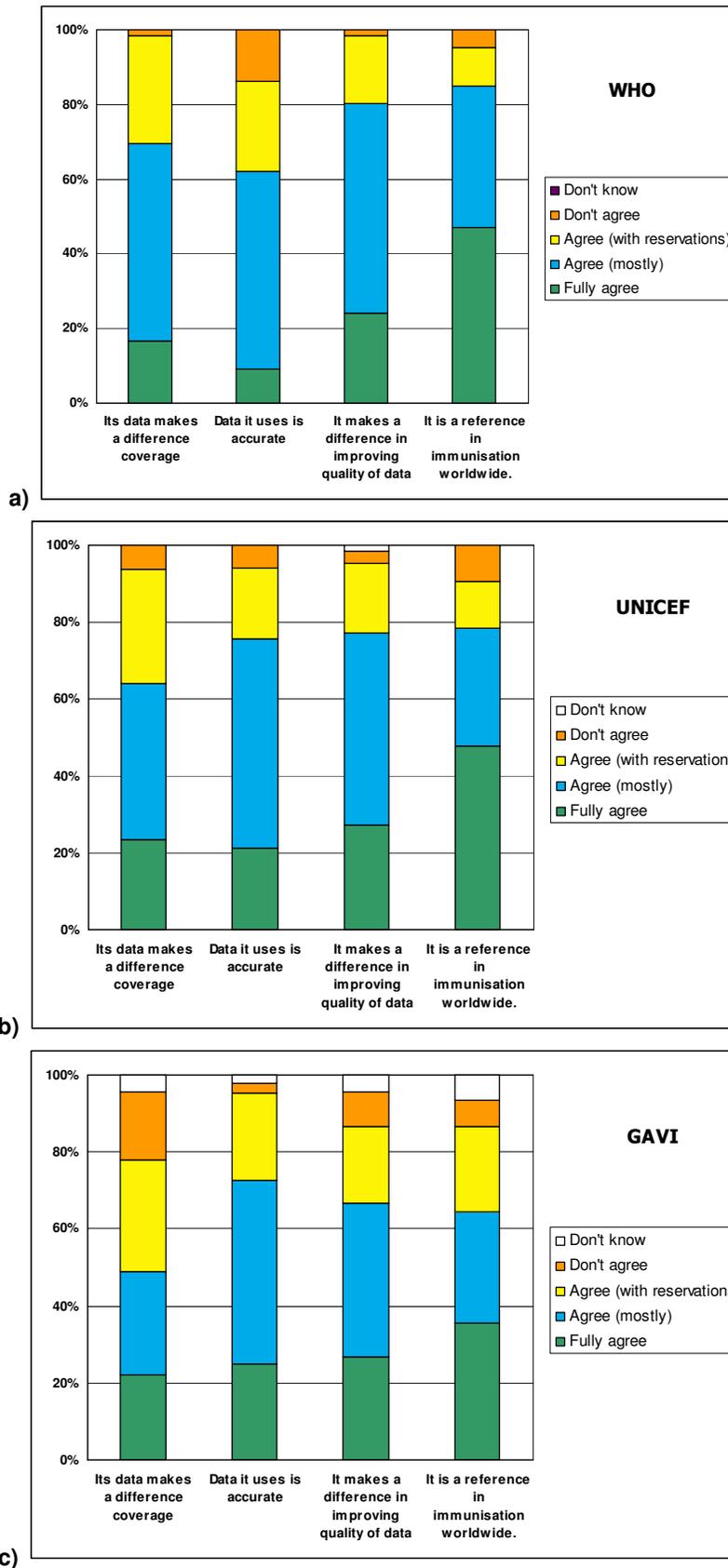
3.1.4 Role of WHO, UNICEF and GAVI

Perceptions of the **role of WHO, UNICEF and UNICEF** in the production and dissemination of immunisation information were assessed through a series of questions where statements were presented and respondents were asked to which extent they agreed or disagreed.

For both WHO and UNICEF, around between two thirds and three quarters of all respondents indicated that they think that the data produced by these institutions comes from reliable sources, that WHO and UNICEF both play an important role in maintaining and improving data quality, that both institutions play an important role as immunisation reference entities, and that information disseminated through WHO and UNICEF has made a real difference for immunisation coverage. When asked the same question regarding GAVI's role, the responses were similar, with one exception: half of respondents thought that information disseminated through GAVI made no difference in immunisation coverage levels. Overall, the results showed positive appreciation of WHO's role in the production and dissemination of immunisation coverage data and as a reference institution in relation to global immunisation issues; an equally positive appreciation of UNICEF's role in this.

Complementary questions were asked about the role that the **HMN** could play in immunisation coverage measuring and reporting. Almost one third of all respondents could not identify or describe the roles of the HMN. Among those who knew, around 85% attributed important roles to the HMN for supporting baseline assessment of countries HIS, providing monitoring tools for HIS performance, serving as a forum for HIS development, supporting HIS technically and financially, and training HIS staff.

Figure 4. Level of agreement of respondents in relations to statements about (a) WHO, (b) UNICEF and (c) GAVI.



A final question concerned several statements related to "**performance based funding**". Answers were summarised as follows:

- 94% of respondents agreed (fully or to some degree) that performance based funding is fair if correctly applied; half agreed mostly or completely;
- 28% of respondents mostly or fully agreed that the best data available is not good enough to support performance based funding;
- only 42% would agree to use a single indicator to support performance based funding;
- 44% of all respondents thought that existing data would not be good enough to make performance based funding decisions; only 24% fully or mostly agreed.

Hence, there appeared to be considerable support for the concept of performance based funding but many reservations with regard to the appropriateness and quality of the necessary data to manage it.

Interventions to improve the accuracy of immunisation data

Respondents put forward a large number of recommendations to improve the accuracy of immunisation coverage data, as summarised below.

Improved data monitoring and quality control

A renewed focus on data quality was advocated by many, with regular data quality self-assessments and periodic external data quality audits as key elements. Respondents advised to focus on administrative data (regular monitoring to ensure completeness and timeliness of data), specifically data that is produced at the lower levels of the health care system and, especially, on the transmission of data from lower to central levels ("where motivation for precise, correct and timely data is decreasing"). Many respondents underlined that investments in infrastructure, systems, and training and capacity building would be needed. "Strengthening the national reporting system and the timely submission of the monthly coverage reports from health centres to the districts and to the central level in MOH [need] appropriate training, and close follow up".

Harmonisation and use of standardised methodologies

Respondents noted the lack of standards, harmonised approaches, and transparency in the processes used to establish immunisation coverage information. Harmonisation of immunisation coverage monitoring was described in terms of "one budget, one plan and one report" shared by partners at national and sub-national level. Transparency and harmonisation must also extend to survey methodologies, using commonly accepted, transparent and standardised processes (generally "in accordance with WHO's instructions"). "WHO/UNICEF and national data: always there is a big difference between organization data and national data, this makes data interpretation vey difficult; countries and organisations must agree on a system for calculating targets."

Many respondents were in favour of increased use of coverage surveys (regular cluster surveys or MICS). Regular surveys of immunization coverage could be complemented by occasional biological verification (e.g. Measles antibodies, BCG scar review).

Training of health personnel and managers in the use of simplified tools

The need for more and better training was mentioned in many comments. This included training for EPI staff in data and information management, monitoring and evaluation, and DQS.

Regular supportive supervision of health workers should be carried out with a special focus on data management. Supervision should aim at sensitising health workers to the importance of appropriate collection, screening, treatment, analysis and use of accurate data, followed by supportive supervision and constant renewal of supplies and data collection materials and tools. Designing simple databases for EPI monitoring that could be used at lower level along with regular trainings was also mentioned as an option.

Improvement of service registers

Where appropriate the use of computerised registers could improve the accuracy of coverage data (administrative data and country estimates). Computerised systems would allow greater flexibility (frequency of data collection, level of data collection, data aggregation, closer monitoring). The use of PDAs in the field for recording vaccinations was also recommended occasionally.

Data Quality Audits and Data Quality Self-Assessments

DQAs led to tangible improvements in the management of immunisation data, helped health workers familiarise themselves with data management procedures and led to renewed emphasis on the training of health workers to improve recording, transmission and reporting of information. Results from DQAs have also been used to verify and correct administrative coverage data and have led to plans to improve data collection systems and their performance. But DQAs and DQS are just tools:

"DQS is useful to detect weakness and to improve data collection systems for immunization coverage monitoring, but mostly the problem depends on the [capacity of the] health system".

Respondents reported that DQAs have led to significant improvements in the quality of information systems, recording practices, monitoring and use of information at local and district levels, reporting and flow of data, quality and accuracy of data, feed-back and sharing of information, and capacity building for staff working in EPI and information units. However, additional efforts are needed in training and capacity building and development of appropriate management tools, to achieve lasting improvements and sustainable data quality.

Measures to improve WHO and UNICEF processes and methods to report on immunisation coverage

WHO and UNICEF were advised to make **more effective use of surveys** (increased use of surveys, revision of JRF, improved and increased investment in data systems for research at country level); improve **harmonisation and standardisation** by use of uniform data collection tools and collective supervision of immunisation services, and by using only agreed channels of information in a country which is supposed to be monitored jointly and regularly by all parties;

renew the **emphasis on data quality and validation** through joint support and monitoring of data flow from the peripheral to the central level; and invest in countries' capacity to produce technically sound data collection tools and methods through **training and capacity building**, especially in data use. Respondents thought that there was a need for more technical support by WHO and UNICEF experts to assist the country in conducting in-depth surveys. WHO and UNICEF should develop easy-to-use tools at operational level for collection of immunization data.

Use of immunisation coverage data to inform policy changes

Respondents provided some examples of how immunisation coverage information can be used to influence health and social policies.

Budgeting and financing

Immunisation coverage data can be used effectively during annual budgetary processes and in the development of Medium Term Expenditure Reviews; e.g. as tools to leverage resources in hard to reach areas and low performing sub-districts; to convince the Ministry of Finance to create a budget line for immunization in the national budget; or to convince the government to increase funding levels for routine immunisation.

Monitoring and planning systems

Immunisation coverage data (e.g. DPT3 coverage data) have been used in countries to classify districts by performance, providing extra support and supervision from the national level to those with lower coverage. In some countries the successful coverage monitoring experience of the EPI programme helped other sectors to improve their own monitoring systems. Immunisation coverage has been used as one of the proxy indicators to monitor the Accelerated Child Survival plan in one of the countries.

Governance, and public sector performance appraisal

Coverage and surveillance data on vaccine preventable disease has been used by governments to appraise the performance of local administrations and annual coverage reports have been discussed in cabinet meetings. Coverage differentials can be used to compare "a high coverage area versus a lower coverage area, and the challenges to ensure that the low coverage area meets the criteria". Some sub-national authorities set up special task forces and action committees on immunization based on the coverage presented to the authorities.

4 Conclusions and recommendations

This report presents the preliminary results of the first 55 respondents, mainly country-based EPI staff and from WHO and UNICEF national offices. This survey relies on respondents' capacity and willingness to accurately report on some facts, opinions and views; hence, findings have to be interpreted as what respondents have said which does not necessarily coincide with what really happens or is thought.

Administrative data is the most common source of data used and usually for programme management; surveys and estimates (both country and WHO estimates) are also widely used but less frequently. Coverage data is often used for a wide range of different purposes and in some instances gets into the offices of high range governmental officials.

Low quality of data seems to be a concern and it was identified that country sources (administrative data and countries' estimates) are of less quality than WHO estimates and surveys.

WHO and UNICEF, and to a very slightly lesser extent GAVI, are seen as key actors in relation to immunisation coverage and immunisation data. Despite the difficult tasks of these organisations, they still seem to have a good deal of credibility at country level. It was striking that HMN was only known by one third of the respondents.

The idea of performance based funding was more accepted and agreed than the specific technicalities of how to measure performance. There was a common understanding that data quality and quantity might not be completely appropriate to support performance based funding in all cases.

Respondents issued a good number of possible actions to improve the quality of data. Most of them had to do with procedures of data management at peripheral level, standardisation (of administrative data management and surveys as well) and capacity building. DQAs and DQs were positively perceived not only (or even mainly) as ways to measure the accuracy of the reporting system but as opportunities to identify key issues among local and national levels staff.

Recommendations

These recommendations are based on a small proportion of the interviews sent out, and therefore, should be seen as preliminary. They will be articulated with the findings of the other two components of this evaluation (the statistical and the literature review components).

- Efforts to improve the quality of the production, transmission, analyses and dissemination of coverage data should focus on the administrative reporting system. WHO and UNICEF are seen as very valuable immunisation stakeholders and should regain the initiative to unambiguously promote the strengthening of administrative reporting systems.
- GAVI, with other Global Health Initiatives, should address issues of concern related to performance based funding. Among others:
 - a. Validity (and future) of current methods to estimate data accuracy (e.g. DQAs and DQS)
 - b. Quantity and quality of information needed to decide on the performance of a programme
 - c. Fairness and transparency of performance based funding
- The main immunisation stakeholders, likely led by WHO, with an increased participation and visibility of HMN at country level, should consider establishing consensual standards for:
 - a. the assessment of the quality of data sources
 - b. the analyses and interpretation of (immunisation) coverage data, including surveys methodologies
 - c. the rational use of coverage as a key indicator of health systems performance, at all levels of the decision making processes.

ANNEXES

Annex. Questionnaire

Q1. Respondent name, institution name and department, geographical location

Q2. Respondent's position in the institution

Q3. How often do you use immunisation coverage information in your work?

1. daily
2. weekly
3. monthly
4. annually
5. never

Q4. What type of immunisation coverage data do you generally use, and for what purpose?

- 4.1. administrative data reported by countries
- 4.2. official estimates by countries
- 4.3. WHO/UNICEF estimates
- 4.4. UNICEF Multiple Indicator Cluster Survey (MICS)
- 4.5. Core Welfare Indicator Questionnaires (CWIQ) surveys
- 4.6. Demographic Surveillance Systems (DSS) data
- 4.7. EPI Cluster survey data
- 4.8. data from DHS
- 4.9. do not use immunisation coverage data / don't know

1. for programme monitoring
2. to report or disseminate coverage information
3. for decision making (e.g. funding based on coverage)
4. for research purposes

Q5. With whom do you usually share / to whom do you disseminate immunisation coverage information?

1. within a small team of collaborators and colleagues within my organisation
2. in seminars or workshops outside my organisation
3. in publications aiming at a larger audience (e.g. newsletter)
4. through peer-reviewed international health journals
5. generally don't share immunisation coverage information

Q6. What is the quality or accuracy that you would attribute, in general, to the following sources?

- 6.1. administrative data reported by countries
- 6.2. official estimates by countries
- 6.3. WHO/UNICEF estimates
- 6.4. Demographic and Health Surveys (DHS)
- 6.5. UNICEF Multiple Indicator Cluster Survey (MICS)
- 6.6. core Welfare Indicator Questionnaires (CWIQ) surveys
- 6.7. Demographic Surveillance Systems (DSS) data
- 6.9. EPI Cluster survey data

1. I have never used this source
2. poor
3. partially acceptable
4. good
5. perfect
6. don't know

Q7. In addition to immunisation COVERAGE data, what other immunisation-related data are used in your organisation?

1. updated national censuses
2. older national censuses (if no up-to-date information available)

3. data from vital registers (e.g. births, mortality, migration registers)
4. demographic estimates (e.g. for mortality)
5. Burden of Disease data (including DALY)
6. epidemiological surveillance data (e.g. for vaccine preventable diseases, incidence/prevalence data)
7. don't use other immunization-related data

Q8. What is the aggregation level of the immunisation coverage data that you use regularly?

1. use global figures
2. use regional figures (group of regional countries)
3. use national figures
4. use sub-national figures (provincial, district level)
5. don't use aggregated immunisation coverage data

Q9. What type of disaggregated immunisation coverage data do you use generally?

1. by age group
2. by gender
3. by economic variables (e.g. income)
4. by social factors (e.g. education, occupation, family size, urban/rural)
5. by ethnic group
6. don't use disaggregated coverage data

Q10. For what antigen do you use immunisation coverage data?

1. DTP
2. OPV
3. BCG
4. Measles
5. Hib
6. Hepatitis
7. TT
8. Rotavirus
9. Pneumococcus
10. don't use specific antigen data

Q11. What interventions/measures could you suggest that would help to increase the accuracy of immunisation coverage data?

Q12/25. Do you agree / disagree with the following statements concerning a "performance based funding" scheme to support immunisation programmes

- 12.1. performance based funding is fair if correctly applied
- 12.2. even the best immunisation data available is not accurate enough for this purpose
- 12.3. A single quantitative indicator (without further qualitative consideration) is enough to assess performance
- 12.4. the quality of data generated in aid recipient countries is not good enough to assess performance

Q13/19/27. Do you agree / disagree with the following statements in relation to WHO activities to support immunisation programmes?

- 13.1. data produced and disseminated by WHO make a real difference in immunisation coverage levels.
- 13.2. the immunisation data sources used by WHO are clear, accurate and credible.
- 13.3. WHO makes a difference in improving the scope, accuracy and availability of immunisation data.
- 13.4. WHO is a reference for other organisations and institutions aiming at supporting immunisation worldwide.

Q14/20/28. Do you agree / disagree with the following statements in relation to UNICEF activities to support to immunisation programmes?

- 14.1. data produced by UNICEF make a real difference in immunisation coverage levels.

14.2. the immunisation data sources used by UNICEF are clear, accurate and credible.

14.3. UNICEF makes a difference in improving the scope, accuracy and availability of immunisation data.

14.4. UNICEF is a reference for other organisations and institutions aiming at supporting immunisation worldwide.

Q15. How could WHO and UNICEF improve their processes and methods to report on immunisation coverage? (please note any suggestions or recommendations you might have)

Q16/29. How do you rate the utility of the Joint Annual Reporting Process on immunisation coverage?

Q17/23. Do you / your organisation use immunisation coverage data as an indicator to monitor health care system performance?

Q18/26. Do you agree / disagree with the following statements in relation to GAVI support to countries?

18.1. data produced and disseminated by GAVI make a real difference in immunisation coverage levels.

18.2. the immunisation data sources used by GAVI are clear, accurate and credible.

18.3. GAVI makes a difference in improving the scope, accuracy and availability of immunisation data.

18.4. GAVI is a reference for other organisations and institutions aiming at supporting immunisation worldwide.
immunisation worldwide.

Q21/30. How can the Health Metrics Network play a role in immunisation coverage measuring and reporting?

21.1. support baseline assessment of country health information systems (HIS)

21.2. provide monitoring tools for HIS performance assessment

21.3. serve as a forum for sharing countries' experience in HIS development

21.4. provide technical and financial support to strengthen HIS

21.5. provide support to training and capacity building of HIS staff

Q22. What is your opinion on the validity of countries' official immunisation coverage estimates?

Q24. Please name areas or instances where information on immunisation coverage has been used to influence policy changes in the country where you work / your area of work.

Q31. Mainly for what purposes do you use results from Data Quality Audits and Data Quality Self-Assessment? Explain use of DQA / DQS data

Q32. Have past efforts to improve immunisation coverage data quality and reliability using DQA, DQS) led to tangible improvements? Specify whether improvements have occurred, and specifically in what area

Q33. Has the use of immunisation coverage data at local level (by local health institutions and administrations) improved in recent years (local coverage monitoring)? Specify in what areas.

References

¹ GAVI Alliance. Mission. <http://www.gavialliance.org/vision/index.php>.

² GAVI Alliance. Consultancy services for conduction and evaluation of immunisation coverage monitoring methodology and process. Request for proposals for consultancy services (RFP GAVI ALLIANCE -07-07). July 2007

³ SCIH/LATH/EHG. Consultancy services for conduction and evaluation of immunisation coverage monitoring methodology and process (RFP GAVI ALLIANCE -07-07). Amendments to the technical proposal. November 2007.