



**DRAFT REPORT OF TECHNICAL CONSULTATION ON EFFECTIVE COVERAGE
IN HEALTH SYSTEMS
27-29 August 2001, Rio De Janeiro, Brazil**

1. Introduction

A technical consultation on effective coverage in health systems was held in Rio De Janeiro, Brazil, from 27-29 August 2001. This consultation was organized by the Cluster of Evidence and Information for Policy (EIP), WHO, in collaboration with the WHO Regional Office for the Americas and the Oswaldo Cruz Foundation, Brazil.

35 participants attended the meeting from WHO Regional Offices, WHO Headquarters, WHO Member States, various technical organizations and donor agencies. The participants were selected according to their practical experience in the field of health programme evaluation and monitoring, assessment of health service provision, health information systems, data collection and survey design.

The discussions were focused around the following main themes:

- Rationale for WHO's work on effective coverage
- Conceptual framework of measuring effective coverage
- Incorporation of equity dimension into the measurement of coverage
- Identification of interventions and indicators for the measurement of effective coverage
- Capacities of countries to carry out the measurement of effective coverage within the scope of their health information systems
- Approaches to improve data collection from private health care providers
- Future steps in the measurement of effective coverage.

2. Rationale for WHO's work on coverage

At regional consultations held since the 107th session of the Executive Board, it has been suggested that the assessment of *effective coverage* of a selected group of interventions be incorporated into health system performance assessment. *Effective coverage* does not measure the impact of a health intervention, often difficult to do, but does represent an intermediate step in achieving a health impact. Its usefulness as an intermediate goal lies in its direct link to the health system and in the fact that its measurement can reveal the impact of managerial practices and decision making processes on health service provision function at local, regional and national levels.

WHO's work on effective coverage emphasizes scaling up international and country level responses to critical conditions that undermine people's well-being, with greater attention being given to the benefits of the investments made and to the distribution of those benefits among

different socio-economic groups. The work on effective coverage also supports WHO's current agenda for improving health system performance:

- Developing tools for evaluating health systems functions
- Focusing on the attainment of intermediate goals
- Making health system performance measurement a tool for health planners and managers at national and sub-national levels
- Assisting countries in understanding the impact of their interventions on the population in most need
- Assisting countries in analysing and monitoring the performance of health care providers.

The participants stressed that WHO's work on the measurement of coverage must be consistent with the current assessment of health system performance and complement and improve the information already being collected by countries. Countries are finding the measurement of coverage useful and WHO needs to respond quickly to this interest

3. Conceptual framework for measuring effective coverage

The principle background paper defined effective coverage as the proportion of the population in need of an intervention who have received an effective intervention. As a specific example, those considered to be effectively covered with a third dose of DPT (DPT-3) would have received three safe and correctly administered injections of a potent vaccine at the appropriate ages. The denominator of the percent effectively covered would be all children in the appropriate age group. It was stressed that the numerator of the coverage ratio should indicate the number of population units (individuals, houses, villages) receiving effective interventions, and the denominator should refer to the population that would need the type of services indicated in the numerator.

The background paper identified three main conceptual elements of effective coverage: access, utilization, and effectiveness.

Access was defined in terms of availability, accessibility, affordability and acceptability. Utilization was defined as the combination of access and personal health behaviour. Effectiveness was considered a function of several variables, including efficacy, inputs (amount and quality of resources), quality assurance mechanisms (process of service delivery, provider performance), patient compliance and health behaviour, and external factors (environmental, biological, social, etc.).

The background paper distinguished effective coverage from the effectiveness of the intervention itself. For example, the effectiveness of DPT, properly administered, is known to be high. But unless the quality of the vaccine and the administration can be ensured, effective coverage with DPT, even among those receiving the vaccine, might be low.

The participants suggested that the term *coverage with effective interventions* be used instead of *effective coverage*. They considered that *effective coverage* would best refer to the proportion of people in whom the health intervention had actually produced a desirable health outcome.

The background paper described five different aspects of coverage which could be analyzed in trying to determine where problems lay in achieving effective coverage. These are: availability

coverage, accessibility coverage, acceptability coverage, contact coverage, and effective coverage.

Availability coverage

- The proportion of people for whom sufficient resources and technologies have been made available
- The ratio of resources to the total population in need
- The proportion of facilities that offer specific resources, drugs, technologies, etc

Accessibility coverage

- The proportion of people for whom health services are accessible in terms of their distance or travel time

Acceptability coverage

- The proportion of people for whom interventions are acceptable (cultural acceptability, beliefs, religion, gender, etc.)
- The proportion of people for whom health services are affordable

Contact coverage

- The proportion of population who have contacted a health service provider

Effective coverage

- The proportion of people who have received effective interventions

The participants were in general agreement with this breakdown, but suggested that affordability be included as a separate domain rather than a dimension of acceptability coverage.

It was recommended that the role of structural elements of health systems and their impact on coverage should be more emphasized.

The importance of focusing on the health needs of the population and identifying them accurately was stressed, in order to select interventions appropriately and avoid excessively supply-oriented perspective of coverage.

While acknowledging the importance of measuring coverage with effective interventions as an intermediate goal of health systems, the participants emphasized the importance of measuring the impact of those interventions as well.

4. Incorporation of equity dimension into the measurement of coverage

The incorporation of an equity dimension into the measurement of coverage with effective interventions is necessary. It was suggested that the relationship between the asset and income distribution and the distribution of health services be further explored. The presentation of the World Bank (WB) demonstrated the relationship between immunization coverage and asset index in Tanzania and Malawi.

The WB's asset index approach to the study of equity in the distribution of health services employs the smallest feasible number of asset questions that can be added to a household survey questionnaire. The index is applied to denominator data collected through a survey, and is used

to divide a population into groups of equal size (for instance, quintiles) on the basis of wealth. The cut-off points for each group are established for each survey.

Some participants suggested that asset questions, or some other variables associated with an individual's socio-economic status, be added to the clinical forms used for patients receiving certain interventions in facilities. Doing this for all patients could allow for constructing a socio-economic profile of patients.

The participants discussed the issue of correlation between the asset index and income per capita. A concern was expressed that the asset index may not capture socio-economic differences in rich and middle-income countries, thereby limiting its applicability in WHO methodology. In household surveys, the value given to certain assets by respondents of different social and cultural background would be different, therefore requiring calibration and adjustment of responses for better comparability. It was also mentioned that the use of quintiles for assessing economic status whether through income or asset index could be quite sensitive to income distribution in the society, thereby making discrete comparisons difficult.

It was agreed that the issue of measuring socio-economic inequalities requires further methodological discussions in order to develop the best measurable descriptor of an individual socio-economic status.

5. Identification of interventions for the measurement of effective coverage

The issue of selecting interventions and indicators for the measurement of coverage was intensively discussed. The measurement of coverage should be sensitive to the characteristics of different countries and locales, and selection of interventions should reflect both country-specific and global perspectives. Objective assessment of needs, for which effective interventions exist, should be an initial step in the process of identification of interventions.

The following criteria were proposed for the selection of interventions:

- Ability to produce a significant health gain in a relatively short time
- The size of a health problem at global and country levels
- Evidence on effectiveness of an intervention, and its inherent credibility
- Correspondence to the national health policies and priorities, and objective needs
- Balance between different modalities of health care - from preventive to curative - and between different types of illnesses - communicable, non-communicable, life-cycle related health conditions, etc.
- Cost-benefit ratio of obtaining information at country level
- Ability to link the global processes with country priorities for the benefit of the latter

The selection of indicators for the interventions would be guided by the following principles:

- Internal and external validity of the indicator
- Feasibility of obtaining valid, reliable, and comparable data for the numerator and denominator
- Parsimonious set of indicators

Indicators should be selected in such a way that would avoid so called 'indicator creep' - exclusive attention of policy makers to selected coverage indicators at the expense of other indicators and interventions not included in the indicator list. A good balance between different health domains (preventive, curative) and illnesses could avert this problem.

It was further suggested that besides the measurement of coverage with effective interventions, the measurement of harmful practices (unsafe injections, over-use of antibiotics, sale of counterfeit drugs, etc.) would also be useful in the assessment of health service provision function.

In order to link the global and country-specific contexts, it was suggested that a core set of coverage indicators be selected for the global measurement, to which each country could add additional interventions, according to their priorities.

A selected group of interventions was chosen for detailed discussions, to get a cross section of the critical data, definitional and measurement issues that would be pursued in trying to estimate coverage of effective health interventions

Communicable diseases

HIV/AIDS merits attention on several grounds:

- Enormous health burden
- Possibility of producing significant health gain through effective preventive interventions
- Political commitment and increased international attention
- Significance of HIV/AIDS as an obstacle for the socio-economic development and poverty reduction

Condom use was identified as the most sensible indicator of coverage with effective interventions against HIV/AIDS given its preventive nature, effectiveness, and wider availability. Despite the fact that condom use only indirectly captures HIV/AIDS programme activity, it was still considered to be the most concrete and feasible measure of HIV prevention at population level.

There are other potential candidates (voluntary counselling and testing, management of opportunistic infections, mother to child transmission, anti-retroviral treatment) which represent different modalities of care. One of the major difficulties in measuring coverage with curative interventions in an HIV/AIDS programme is to ask individuals the question about their HIV positive status and to obtain an accurate response. It was suggested that further discussion with experts be continued in order to explore the potential of the interventions, other than condom use, to contribute to the measurement of coverage.

Significant challenges were identified in the measurement of coverage in TB programmes. The evaluation of the TB programme relies on service data for its indicators. Effective interventions against TB is the completion of a full course of treatment with sputum conversion. The cured status can be certified only by a doctor through sputum examination. This information is usually available only at health facilities and not in households, and the private sector is largely underrepresented in the service data. Furthermore, treatment of TB is a long process. If a survey

captures a patient in the process of treatment, it cannot be assumed that effective intervention has taken place.

Besides the problem of the numerator, the measurement of coverage in TB programmes poses the denominator problem as well: in order to identify a true denominator a sputum examination has to be performed, which cannot be done in a survey. Therefore, the only choice left is to ask an individual if he or she has ever been diagnosed with TB during the last 12 months, and combine it with external data on TB incidence.

The participants felt that in some cases, such as in TB, the use of external data on incidence or prevalence of the health problem might be the only choice for a denominator figure.

Non-communicable diseases

Several possible candidates have been proposed for the measurement of coverage in non-communicable diseases, such as: diabetes mellitus, depression, angina pectoris, hypertension, cervical cancer screening, etc.

Most of the non-communicable diseases share one characteristic: in order to ascertain the prevalence of needs in the population and validate the results of screening questionnaires it is desirable to use reference tests. The reference test could be either a detailed diagnostic interview by a doctor, or a lab test. However, it was felt that such tests are not always acceptable and affordable for the population. Also, the tests can be only administered to small samples, and therefore methods have to be streamlined that would allow generalization of small sample observation to the entire population.

For the measurement of coverage with effective interventions in non-communicable diseases, it is very important to focus on compliance to treatment regimen. Many non-communicable illnesses are chronic conditions and require either long-term or life-time treatment. In this situation, the only definition of effective intervention would be the compliance to treatment.

For certain non-communicable diseases, the most effective intervention is prevention or early diagnostic screening, for instance for cervical cancer. However, it was noted that data on these types of preventive interventions are very poor.

Life-cycle related interventions

The specific nature of this group of interventions and their integrated character makes the selection of an appropriate indicator difficult. Two main challenges were identified: one, to capture as many dimensions of integrated programmes as possible, and the second, to be parsimonious in selecting interventions.

One of the advantages of life-cycle interventions was a "normative denominator" - all people in a specific age and physiological cycle of their life. However, for specific interventions, selection of specific sub groups might be required, for instance pregnant women at risk of perinatal complications.

The participants also acknowledged the difficulty obtaining valid information from respondents when the questions relate to certain life style and practices, for instance sexual practices, contraceptive use, etc.

Immunization

The participants acknowledged the importance of childhood immunization as an effective intervention that should be measured in the context of health service coverage. However, the immunization coverage figures do not tell the full story. There is a need for additional information about the quality of intervention. A parallel surveillance system might be useful to monitor the quality of services through looking at the morbidity and mortality from infectious diseases. For instance, measles mortality can reveal the quality of the immunization programme.

Although DPT coverage is not the best tracer of the health system performance, its use as a proxy still can be still justified on the grounds that DPT3 requires three visits to a health care facility and by one survey it is possible to obtain enough information to judge the difference between contact and effective coverage.

There are many biases and pitfalls in service data, and mass immunization campaigns are not usually captured by service statistics, which raises the need for validating the data from time to time with representative surveys.

The participants discussed a case study on the estimation of valid immunization coverage in Bangladesh based on 1997 DHS. A statistical method of estimation of valid immunization from crude immunization figures was presented. The method was based on predictive probability assessment of valid immunization among the children whose immunization status has been confirmed by history. It was agreed that the methodology should be further tested and tried on different samples.

6. Capacities of countries to carry out the measurement of effective coverage within the scope of their health information systems

Capacities for measuring effective coverage should be decentralized to national and sub-national levels. The measurement of coverage first should serve the purpose of improving management and enhancing performance, and then be used for global comparisons.

The measurement of coverage at country level should offer capacity building opportunities for improving the performance of the health information system locally. Capacity building efforts should focus on methodological issues, as well as on the use of coverage information for decision-making and management.

A thorough inventory of existing data and data collection instruments in countries should be made in order to avoid duplication of efforts in the measurement of coverage.

The participants raised the issue of scarcity of financial resources required for building strong health information systems, that would incorporate both service-generated data as well as surveys (whenever necessary) in routine reporting.

7. Approaches to improve data collection from private health care providers

The participants intensively discussed the issue of improving data collection from private providers. Although there were no definite strategies identified some interesting suggestions were made:

- Refine the definition of private health care providers
- Develop an inventory of all private providers by categories and location at sub national levels
- Map the population coverage of each private entity
- Identify incentive mechanisms and make them work for improving reporting from private providers
- Develop regulatory procedures which through contractual agreements or licensing rules will define data reporting requirement for private providers

The key for improving reporting from private providers is to design such incentives that would outweigh the burden of reporting.

8. Future steps in the measurement of effective coverage

The participants discussed future steps that WHO should take in order to operationalize the measurement of coverage with effective interventions.

The development of a survey module was suggested as the first step in transforming the concept of effective coverage into an assessment and monitoring tool. WHO's survey on health and health system responsiveness was considered as a potential instrument that could accommodate a coverage module.

The coverage module should focus on core health care interventions, which would be selected according to the criteria proposed by the meeting. The coverage module should be tested in several countries before rolling it out on a global scale. The module should be flexible in order to be adapted to different priorities in different countries.

The participants touched upon the issue of using small samples for estimating the event in the population. This was considered particularly important at the sub-national levels. It was agreed that statistical techniques and methodology be further streamlined and tested that would allow the use of small samples for obtaining valid, reliable, and comparable estimates.

9. Key messages

- The measurement of coverage with effective interventions is a valuable complement to WHO's work on enhanced health system performance
- Measurements of coverage should optimally include measurement of the distribution of coverage by various socio/economic groups, recognizing that coverage of many health interventions tends to be systematically lower in those with lower socio/economic status. An appropriate asset index should be developed for assessing population's true economic status via household surveys. The results of such assessment could be used as dummy variables for describing the distribution of health services in the population.
- The measurement of coverage should focus on a selected set of interventions to be chosen according the following criteria:

- Ability to produce a significant health gain in a relatively short time
- The size of a health problem at global and country levels
- Evidence on effectiveness of an intervention, and its inherent credibility
- Correspondence to the national health policies and priorities, and objective needs
- Balance between different modalities of health care, preventive to curative, and between different types of illnesses, communicable, non-communicable, life-cycle related health conditions, etc.
- Cost-benefit ratio of obtaining information at country level
- Ability to link the global processes with country priorities for the benefit of the latter
- The measurement of coverage should accommodate both country-specific and global perspectives by accommodating a core module of interventions. Each country should be able to select interventions and indicators according to their needs and add them to the core module.
- Besides measuring coverage at national levels through large samples, there is a need to design appropriate techniques for using small samples for measuring coverage at sub-national levels.
- The measurement of coverage should avoid concentration on vertical programmes. It should keep the health system (at sub-national or national levels) as a unit of assessment, and use the interventions as tracers of performance of health service provision
- The measurement of coverage should become a management tool and will aid strategic planning and the decision making process and sub-national and national levels
- The measurement of coverage should enhance the capacity of national health information systems and improve validity, reliability, and comparability of routinely reported data
- In the process of the measurement of coverage, WHO should offer countries opportunities for capacity building
- Improving data collection from the private sector should be an important task for WHO and countries in strengthening health information systems
- WHO's work on coverage should be carried out in close cooperation and with WHO Regions and the Member States.