## Health system metrics
### Monitoring the health system in developing countries

October 6-7 2004, Glion, Switzerland
WHO and World Bank

### Report

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background</td>
<td>2</td>
</tr>
<tr>
<td>Measurement of health systems and their performance: selected experiences</td>
<td>3</td>
</tr>
<tr>
<td>Health systems performance measurement</td>
<td>3</td>
</tr>
<tr>
<td>Monitoring the impact of the scale up</td>
<td>3</td>
</tr>
<tr>
<td>Monitoring progress to the health MDGs using the PRSP framework</td>
<td>4</td>
</tr>
<tr>
<td>Tools to assess distribution of services: district level information</td>
<td>5</td>
</tr>
<tr>
<td>General premises for health system metrics</td>
<td>6</td>
</tr>
<tr>
<td>Proposed health system metrics</td>
<td>7</td>
</tr>
<tr>
<td>Table 1: Proposed health system metrics</td>
<td>9</td>
</tr>
<tr>
<td>Next steps</td>
<td>10</td>
</tr>
<tr>
<td>ANNEX 1: Financing</td>
<td>11</td>
</tr>
<tr>
<td>ANNEX 2: Human resources</td>
<td>15</td>
</tr>
<tr>
<td>ANNEX 3: Health Information Systems</td>
<td>21</td>
</tr>
<tr>
<td>ANNEX 4: Service delivery</td>
<td>28</td>
</tr>
<tr>
<td>ANNEX 5: CPIA</td>
<td>32</td>
</tr>
<tr>
<td>ANNEX 6: Proposed stewardship indicators</td>
<td>46</td>
</tr>
<tr>
<td>ANNEX 7: Summary of discussions</td>
<td>48</td>
</tr>
<tr>
<td>ANNEX 8: Participant list</td>
<td>52</td>
</tr>
</tbody>
</table>
Background

WHO and the World Bank jointly convened a small consultation to describe and reach initial consensus on a limited set of health system metrics comprising core indicators for country monitoring, additional desirable indicators, and indicators or measurement areas requiring further development. The meeting also discussed ways of supporting the further development and implementation of the health system metrics in countries, including field testing in at least three countries. The results of the meeting will be conveyed to the meeting of the High Level Forum on Health MDGs in Abuja, Nigeria, in December 2004.

There is increasing awareness of the need to strengthen health systems to deliver health interventions in an era of scale-up. Effective health systems are an absolute requirement to meet global and national goals and sustain achievements in TB, malaria, HIV treatment and care, safe motherhood, and child survival. There is much at stake. It has been estimated that universal access to basic maternal and child health services could meet 60-70% of the child mortality and 70-80% of the maternal mortality Millennium Development Goals (MDGs).

Health systems and their functions are defined in different ways. Several publications present descriptions of the functions of health systems. While there is considerable demand for assessing the capacity of health systems to scale-up and for monitoring impact, there is an urgent need to provide countries with standardized tools and indicators for continuous monitoring. Serving as an initial step in determining a system's ability to cope with the pressures of scaling up, these tools and their associated indicators will help focus around key issues in health systems. Without a functional health system monitoring the scale up of health interventions will remain fragmented, underutilized, and donor driven.

The focus for developing health system metrics will initially have to be on actionable and measurable areas of health systems. As such the process will aim to result in simple metrics that can provide an overview of specific aspects of an otherwise complex system. Such a process may precede the development of a comprehensive or commonly agreed upon framework. It may also proceed taking into account that measurement challenges in several areas of health systems preclude their inclusion in the initial set of health system metrics. The actionable areas of health systems include financing and the fair and efficient use of resources; human resources; health information; drugs, diagnostics, equipment and infrastructure; and policies, institutionalization and governance. The proposed health system metrics must and will address both the public and private sectors.

The current effort will build upon existing work on health system indicators and performance assessments. There will be gaps and limitations, but this is intended to be a first step towards reaching consensus around a limited set of core indicators of health systems that can be used by countries to regularly monitor progress towards strengthening their systems, especially in the context of achieving the MDGs. The focus is on national level monitoring with a strong

subnational component. The primary users of health system metrics are expected to include national and international health policy makers and planners.

**Measurement of health systems and their performance: selected experiences**

**Health systems performance measurement**

The World Health Report 2000 focused on health system performance, notably the goals and outcomes of the system using their level and distribution to assess the quality, equity, and effectiveness of the system as a whole (WHO, 2000). The report did not focus on the way the system functions, its inputs and processes (the left side of Figure 1, below). The years following the World Health Report 2000 have shown that measurement of the outcomes of the system is difficult, especially in terms of country coverage. From the measurement perspective, the most feasible elements are the health status and coverage measures at the national level, coupled with the prevalence of catastrophic health expenditure, impoverishment because of health expenditures, and low health service utilization because of financial barriers as indicators of fairness in financing. All of these can be measured through household surveys.

**Figure 1: Functions and Goals of Health System**

**Monitoring the impact of the scale up**

The on-going work of the System-Wide Effects Research Network (SWEF), coordinated by Abt & Associates, focuses on measuring the direct and indirect effects of increased funding through the Global Fund against AIDS; TB and Malaria (GFATM) and others on country health systems. A conceptual framework has been developed and is illustrated in Figure 2, below.
While the GFATM focuses on three prevalent diseases, there may be intended and unintended effects on the broader health care system; particularly in areas related to stewardships and policy, resources and resource development, financing and service delivery. Four thematic areas for research have been identified and include: policy, human resources, pharmaceuticals and logistics, and public/private roles. For each of these areas process and outcome indicators have been identified, but limited progress has been made thus far in generating the data needed to construct these. The main methods proposed to do this are facility surveys and key informant interviews, as the routine health information system is generally too weak to generate the needed data. Country work is in its early stages, having been recently initiated in Benin, Ethiopia, Georgia, Malawi and Nicaragua.

**Monitoring progress to the health MDGs using the PRSP framework**

The World Bank report on measuring progress towards the MDGs make strong recommendations as to the importance of health systems for attaining the goals. The Poverty Reduction Strategy Papers (PRSP) framework provides a determinants framework for defining household and community factors and health, education, and related sector variables that affect the MDGs for health. The health system dimensions includes service delivery and financial characteristics. In turn the health system is affected by government policies and capacity (see figure 3 below). The World Bank convened a meeting of technical experts in November 2001 to agree on a set of proximate indicators to monitor the MDGs, mostly household survey coverage.

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3 The MDGs for Health, Rising to the Challenges, 2004.
rates including service utilization. These proximate indicators did not include indicators for assessing institutions and policies, or health system performance; rather, they serve to assess progress towards health-related MDGs at the household level.

Figure 3: PRSP framework

Achieving the MDGs using a Determinants Framework

The MDGs for education and health including AIDS & other communicable diseases

Households/Communities

- Household actions & risk factors
  - Preventive activities. Care during illness.
  - Feeding & nutrition. Sanitary practices/hygiene.

- Household characteristics
  - Wealth. Education. Gender equality.
  - Insurance coverage and fee-waiver status.

Community factors

- Cultural norms.
- Community institutions.
- Social capital.
- Environment.
- Infrastructure.

Service delivery characteristics

- Accountability.

Finance characteristics


Related sectors

- Availability, accessibility, prices & quality of food, energy, roads, water & sanitation, etc.

Households systems & related sectors

- Service delivery characteristics
- Finance characteristics
- Related sectors

Development Outcomes

Health, Education systems & related sectors

Government policies & capacity

Tools to assess distribution of services: district level information

Whereas policy, planning and financial decisions about health services takes place largely at the national level (though this is changing with health sector reform involving increasing decentralization to the district level), actual service provision and delivery of interventions occurs at the subnational level. National health accounts, and national health system profiles generate national indicators. At the subnational level, data on the system structure and management processes can be generated, for example:

- existence of a sound district health plan,
- functioning of the routine health information system,
- service availability and quality,
- patient satisfaction.

Additionally, operational failure issues such as drug stock outs, cold chain functionality, and staff absenteeism can be identified. Data can be generated on system performance, including demand.

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& utilization (e.g. specific clinic attendance per capita), coverage and equity (e.g., attended delivery, TB case detection, and completed immunization; all by income quintiles), and outcomes & impact (e.g. health status indicators and age specific mortality).

District health accounts are a potential instrument for health system metrics at the subnational level and have been developed and used in an increasing number of districts in Tanzania. Reports from the field indicate these have served as a valuable tool for enhancing district level decision-making. For example the analysis of the district level data on burden of disease and resource allocation led to a redirection of available resources; subsequently, significant reductions in child mortality have been documented.

Similarly, Service Availability Mapping (SAM) is a tool that can be used to gather information on the level and distribution of health system actions within a country. District health teams are the key source of information and are used to assess the existence and coverage of specific resources and interventions. Further development of the tool to include complete mapping of all facilities within the district will permit the regular generation of a core set of health system metrics for monitoring and management purposes at the district level.

**General premises for health system metrics**

The various presentations and subsequent discussions led the group to come to agreement around a number of core premises for health system metrics. These can be summarized as:

- The MDGs are the entry point for the current interest in health systems. Therefore, the link between the health system metrics and the health MDGs is essential. The focus of this work will be on low income countries, where health systems are weak and the state of basic health information is poor.
- The focus is on the national and international levels and will be used as a diagnostic of the capacity to track health systems progress over time
- The health system metrics will include indicators for profiling the system (free health services for under fives), managing the system (IMCI attendance in outpatient clinics) and performance of the system (IMCI per capita coverage by wealth quintile). The term performance is used as a descriptor of the health system rather than as a judgement in terms of outcomes.
- In considering key metrics, equity in terms of levels and distribution needs to be captured.
- The health system is complicated. Coverage has multiple dimensions. Availability, access, affordability, provider compliance and user adherence, in combination with efficacy of the intervention determine effectiveness. The focus of health system metrics should be on addressing actionable components, functions, or goals that are measurable.
- Regular measurement of the health system metrics is essential. Therefore, the ability to measure the indicators at minimal costs should be taken into consideration. Special studies may be required for in-depth analyses, but the main goal is to build on existing data collection efforts or come up with simple tools.
- Ideally, each indicator should have a standard threshold or goal to work towards. In practice however, these do not always exist and often there is a non-linear relationship between the indicator score and what is desirable in practice: more does not always mean better and less does not necessarily mean worse. For some indicators it may be possible to define a bare minimum or threshold value to which all countries should aspire.
• Health system profiles will be a necessary complement to the core set of health system metrics. Such profiles should include qualitative and contextual information and provide the background against which the health system metrics should be interpreted. Several regional offices of WHO assemble such profiles based on regional databases and there is a need to make them available at the global level.
• The interpretation of the health system metrics necessitates consideration of indicators at other levels of the health system, including national health service coverage and health status indicators.

Proposed health system metrics

Background papers or presentations for the five selected actionable areas of health systems are included in the Annexes. Each reviews the main indicators that are currently used or have been proposed, describes the major data collection tools that are available or under development, and presents the major measurement challenges at country levels. A list of possible key indicators is suggested.

In the area of policies, institutionalization and governance no health system metrics are proposed at this stage. One of the areas of interest could potentially involve looking at the linkages between financial expenditure and programmatic priorities; tracking of financial flows against commodities is a way of building transparency and strengthening governance. For the time being, the intention is to develop a Country Policy Institutional Assessment (CPIA) for health analogous to that currently used by the World Bank to determine eligibility for IDA credits. The CPIA is a composite index that measures the extent to which a country's policies and institutions are conducive to fostering sustainable growth, poverty reduction and effective use of development resources. The ratings are done by technical experts using standard tools and benchmarks for comparison between countries. Currently, health is only one of 15 components. The development of an adapted CPIA for health for use by countries to assess whether they have appropriate policies and institutions would help. Such a tool could help identify gaps; information could also be used in discussions of health reforms. It would not be used for ranking countries or allocating resources (see Annex 5).

Stewardship is another area of health systems that was listed for further development along the lines of the CPIA for health. Suggested indicators for further work included:
• Existence of health system strategic plan developed or revised in the last 5 years or less and with annual adjustments based on current information
• Proportion of top ten external sources of funding that are coordinated with an agreed government plan
• Funding directed to special initiatives compared with overall health budget.
• Existence of taxes and tariffs on essential commodities
• Existence of a functioning licensing and accreditation system for health professionals and health facilities

The list below presents the proposed set of health system metrics to cover some those areas determined to be actionable, at least at present. This list is preliminary and will require further work. In particular, it will be important to assess the degree to which data are currently available or whether new data collection efforts are needed. Given the urgency to produce a parsimonious set of health system metrics with data, the list is currently quite limited. More detail about the indicators discussed are presented in Annex 6.
The table below gives the proposed indicators. In addition to the standard characteristics of indicators (relevance, sensitive etc.) the selection of indicators is a trade-off between data availability and quality, feasibility of data collection in the near future, ability to be measured regularly for monitoring purposes. Investment in indicators that are under development could lead to replacement of some of the core or additional indicators.

The list below presents the proposed set of health system metrics to cover some those areas determined to be actionable. This list is preliminary and will require further work. In particular, it will be important to assess the degree to which data are currently available or whether new data collection efforts are needed. Given the urgency to produce a parsimonious set of health system metrics with data, the list is currently quite limited. More detail about the indicators discussed are presented in Annex 6.

The table below gives the proposed indicators. In addition to the standard characteristics of indicators (relevance, sensitive etc.) the selection of indicators is a trade-off between data availability and quality, feasibility of data collection in the near future, ability to be measured regularly for monitoring purposes. Investment in indicators that are under development could lead to replacement of some of the core or additional indicators.
Table 1: Proposed health system metrics

<table>
<thead>
<tr>
<th>Core</th>
<th>Additional</th>
<th>Under development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total health expenditure per capita</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(at average exchange rate or in international dollars)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total health expenditure as % of GDP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General government expenditure on health as % of total general government expenditure</td>
<td></td>
<td>Government expenditure on public health as % of total govt. expenditure</td>
</tr>
<tr>
<td>% of the population incurring catastrophic expenditure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of the population impoverished as result of out of pocket expenditure</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Human resources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health workers per 1,000 population</td>
<td>Nurse physician ratio</td>
<td></td>
</tr>
<tr>
<td>(physicians, assistance doctors, nurses, midwives)</td>
<td>(skills mix)</td>
<td>Annual loss of health workers due to specific causes including migration, mortality</td>
</tr>
<tr>
<td></td>
<td>Ratio health worker density in major urban versus rural areas</td>
<td></td>
</tr>
<tr>
<td>Annual output of health workers by training institutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>per 1,000 population</td>
<td>Annual output of health workers by training institutions</td>
<td></td>
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<tr>
<td></td>
<td>Annual output of health workers by training institutions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>per 1,000 population</td>
<td></td>
</tr>
<tr>
<td><strong>Information</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of estimated deaths that are 'counted'</td>
<td>Availability of key health indicators at national (and subnational) levels</td>
<td>Health information system functioning index</td>
</tr>
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<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Service delivery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-patient beds per 1,000 population</td>
<td>% of districts with essential health services available;</td>
<td></td>
</tr>
<tr>
<td>(should be replace if better data are available)</td>
<td>% of districts with minimum health infrastructure</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Policy and governance</strong></td>
<td></td>
<td>CPIA for health</td>
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</tbody>
</table>
Next steps

- A brief report summarizing the issues and the agreed indicators will be circulated to participants the week of 18 October 2004
- The report and indicators list will be circulated to other interested parties to solicit inputs from as wide an array of stakeholders as possible
- A summary of progress will be presented at the High Level Forum in Abuja, Nigeria in December 2004
- Work will commence to develop an interface and populate a database of core health system metrics for low income countries
- Further analytical work will be undertaken on specific indicators and on correlations between indicators
- There is a need for increased advocacy to support investment in strengthening country health information systems, including National Health Accounts and Vital Registration, for example; this can be pursued through the Health Metrics Network (HMN)
- Special studies will be identified to address difficult measurement areas
- Work will start to develop country profiles and to bring together relevant country data bases and circulate the information currently available.
Health system metrics
Monoring the health system in developing countries

October 6-7 2004, Glion, Switzerland

Monitoring health financing changes: key indicators
A discussion paper prepared by Guy Carrin and David Evans, WHO/FER

The health system as whole can be classified into four broad and inter-related functions. These are the provision of health services and interventions; the creation of resources (through investment and training) to provide these services; health financing; and stewardship, governance or oversight of the health system. The health financing function can be further divided into three interrelated sub-functions: revenue collection, pooling and purchasing. Revenue collection is the process by which the health system receives money from households, enterprises, government and other organizations including donors. Pooling is the accumulation and management of these revenues in order to spread the risk of payment for health care amongst all members of the pool - individuals no longer bear the entire financial risk of ill health. Purchasing is the process by which these pooled contributions are used to pay providers to deliver a set of specified or unspecified health interventions. Purchasing can be either passive or strategic, with passive purchasing simply following predetermined budgets or paying bills when presented. Strategic purchasing is generally preferred, where there is a continuous search for purchasing the best health services, from whom, and with consideration given to the incentives inherent in how they are purchased.

A number of indicators of the financing function have been defined elsewhere and they relate partly to the development of a taxonomy that can be used to describe different financing systems across the world, and partly to the key outcomes of the health system or targets for the health financing function. The principal targets of health financing are:

(i) to generate sufficient and sustainable resources for health to enable the health key health system goals to be achieved - e.g. to improve population health and reduce inequalities;
(ii) to use these resources efficiently - to ensure that the appropriate mix of services is provided with minimum waste;
(iii) to ensure that everyone has financial accessibility to key health interventions - in response to the health system goals of reducing health inequalities and improving population health;

These targets are instrumental to achieving health system goals but the financing function is also directly linked to one of these goals, to ensure that households do not suffer catastrophic financial consequences of ill health. Accordingly, the fourth target is:

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to ensure that the method of raising funds for health does not force households to incur catastrophic health expenditures or become impoverished.

Table 1 describes a set of indicators for the three financing sub-functions. In low income countries with weak health information system, it is not desirable to recommend routine monitoring of more than a handful of indicators. In the case of table 1, some of the indicators are used to describe or compare the features of different financing systems across the world, or describe how a single system evolves over time. However, changes in them do not necessarily represent a change in health system performance. Here we suggest a limited number of indicators for which it is possible to argue that a change in one direction is desirable, at least for low income countries. This is where attention should be focused when developing indicators of health system strengthening.

**ESSENTIAL INDICATORS**

1. **Health expenditure - per capita and as a percentage of GDP.** Although it is not necessarily true that increasing expenditure is desirable in all settings, there is an unequivocal relationship between health expenditure per capita and health levels. Although there is concern in many of the OECD countries that expenditures are rising too fast, in poor countries it is generally desirable to increase health expenditures so as to reach better health system outcomes.

2. **The proportion of the population incurring catastrophic health expenditure and the proportion impoverished as a result of out-of-pocket payments at time of delivery.** This indicates the extent to which the financing function contributes to a key health system objective.

**STRONGLY DESIRABLE**

3. **The proportion of general government expenditure devoted to health.** As with GDP, it is not necessarily desirable to increase this proportion in all settings, but in many low income settings the proportion attributed to health can be considered to be too low. *Note: A number of low-income countries already allocate a relatively high percentage of government expenditure to health (e.g. Haiti 14%, Cambodia 16%, El Salvador 24%) and might argue that this share should not be increased in their settings.*

4. **The share of total health expenditure that is prepaid.** This indicates the degree of risk pooling and solidarity. In poor countries the level of prepayment is extremely low so an increase is desirable. On the other hand, it is not necessarily true that 100% prepayment is desirable. Most countries impose some form of payment at point of service to discourage "over-use".

The advantage of indicators 2 and 4 is that it is easier to argue that they ought to be minimized and maximized respectively. An increase in indicators 1 and 3 could be interpreted as an improvement in most poor countries, but this would have to be interpreted carefully.

**Measurement Issues:** Indicators 1 and 4 require routine national health account estimates in order to be monitored over time. While WHO reports estimates for 191 of its 192 Member States annually (not yet for Timor Leste), the uncertainty around some of these estimates is relatively high. Only 70 countries have ever undertaken a full NHA exercise, and only the OECD countries routinely do so. It would be a major contribution of the Health Metrics Network to contribute to the development of routine NHA in poor countries in some way.

Indicator 2 requires a household expenditure survey of some form. These are undertaken relatively commonly in many countries and the contribution of a metrics network could be to
develop a parsimonious set of questions which would enable this data to be collected in a comparative manner. It might also contribute to some remaining methodological questions relating to the recall period for questions and the difference in responses to questionnaires focused solely on health and those focused on expenditure more generally.

Finally indicator 3 is probably the simplest to collect routinely, although it is getting more difficult with decentralization and budget or sectoral support. But it is probably the area in which it will be more straightforward to collect data on a routine basis in the short run.
### Table 1: Overview of Possible Indicators for the Financing Function

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue Collection</strong></td>
<td></td>
</tr>
<tr>
<td>• Per capita health expenditure and share of health in GDP</td>
<td>• To measure the availability of resources for health and potential constraints</td>
</tr>
</tbody>
</table>
| • The share of general government expenditure on health in total government expenditure | • To measure public and quasi-public sector allocation decisions  
(Both indicators can be used to track additionality, depending on the definition) |
| • The share of total health expenditures that are prepaid                 | To measure financial protection against out-of-pocket expenses - process and outcome |
| • The share of the population that is confronted with catastrophic health expenditure |                                                                         |
| **Pooling**                                                               |                                                                         |
| • The number of pools;                                                    | To measure the scale and depth of financial coverage in the different pools |
| • Share of co-payments to total health expenditure in each pool           |                                                                         |
| • Membership in each pool, and                                            |                                                                         |
| • Per capita spending in each pool                                        |                                                                         |
| • Ratio of the amount of equalization\(^6\) transfers to total expenditure by the different pools | To measure the importance of compensatory mechanisms between pools |
| **Purchasing**                                                            |                                                                         |
| • Benefit package: Is the benefit package based on explicit efficiency and equity criteria? Yes/No | To have an indication of how well the inclusion of health services in the benefit package has been analyzed.  
To measure the managerial efficiency in the different pools |
| • Percentage of administrative costs in total expenditure of the different pools |                                                                         |

\(^6\) In the case of multiple risk pools, and if policy makers intend to ensure one benefit package for all insured, a form of financial equalization across pools needs to be put in place. Subsidies will generally have to be granted to those funds that insure high-risk individuals, with financing of these subsidies sustained through a so-called solidarity fund. Contributions into such a fund generally come from those risk pools that insure a high proportion of individuals with low health risks.
Human Resources for Health (HRH)

Khassoum Diallo
WHO/EIP/HRH

Meeting on Health System Metrics
Glion, Switzerland
6-7 October, 2004

Why and for whom – cont'd

Barriers for immunization scale-up according to countries

Source: GAVI
How to classify human resources for health?

**Human resources: The stock of all individuals engaged in the promotion, protection or improvement of health of populations**

### Health occupations
- **Professionals**
  - Nurses, physicians, midwives, pharmacists, dentists, public health providers, etc.
  - Economists, statisticians, policy analysts, lawyers, etc.
- **Associate professionals**
  - Nursing associates, midwifery associates, medical assistants etc.
- **Other support staff**
  - Sweepers, drivers, cooks, clerical staff, etc.

### Other occupations
- **Professionals**
- **Other support staff**

### HRH: Some dimensions to be measured

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Sub-area</th>
<th>Potential Indicator</th>
<th>Data sources and availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>Imbalances/Equity in deployment</td>
<td>Physician or nurse density per 100,000 pop per region</td>
<td>Censuses, AR Accessibility??</td>
</tr>
<tr>
<td>Migration</td>
<td></td>
<td>% of HRH leaving annually the country</td>
<td>AR, not always collected or updated</td>
</tr>
<tr>
<td>Labour market</td>
<td>Unemployment</td>
<td>% of unemployed physicians and nurses</td>
<td>LFS, Facility survey, Accessibility/Classification</td>
</tr>
<tr>
<td>Education, training and research</td>
<td>Educational capacity in health</td>
<td>Number of health training institutions (HTI)</td>
<td>AR, HTI records not always collected or updated</td>
</tr>
<tr>
<td></td>
<td>Renewal of the workforce</td>
<td>Average number of yearly graduates, i.e. physicians</td>
<td>AR, HTI records variable</td>
</tr>
<tr>
<td>HRH for priority programmes</td>
<td>HIV, TB, MCH</td>
<td>Staff trained in priority programme service delivery</td>
<td>AR, NGOs, etc variable</td>
</tr>
<tr>
<td>Monitoring and evaluation</td>
<td>Staffing numbers and distribution</td>
<td>Total stock of HRH/ skill mix</td>
<td>Censuses, AR, LFS variable</td>
</tr>
</tbody>
</table>
What can be the core HRH indicators

**National level**

- Total stock of HRH (all or 2-5 and main categories: Level)
- Resource generation (yearly output/population : Level)
- Skill mix (physicians/nurse ratio or profes./associate ratio: Distrib.)

**Sub-national level**

- Ratio Biggest /lowest density of physician across districts : Distrib.
- Others (To be discussed)

**Using existing data sources**

<table>
<thead>
<tr>
<th>Main data Sources</th>
<th>Comparability</th>
<th>Potential disaggregation</th>
<th>How data is collected / Coverage</th>
<th>Current status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic censuses</td>
<td>Usually comparable over time within country; may be differences across countries</td>
<td>Good for population sub-groups and small geographic areas</td>
<td>National</td>
<td>Almost all countries have at least one census</td>
</tr>
<tr>
<td>Labour force and other household surveys</td>
<td>Usually comparable over time within country; may be differences across countries</td>
<td>Generally weak for sub-groups and sub-national estimates</td>
<td>National or Regional</td>
<td>138 countries have at least one LFS. Classification for HRH monitoring issue?</td>
</tr>
<tr>
<td>Facility sample surveys</td>
<td>Little cross-national comparability</td>
<td>Generally weak for sub-national estimates</td>
<td>National/Regional Mostly public sector</td>
<td>Various sources and implementing agencies</td>
</tr>
<tr>
<td>Administrative records, including PA, RB, etc.</td>
<td>Little cross-national comparability, updating not always ensured</td>
<td>Variable</td>
<td>National / Mostly Public or only registered staff</td>
<td>Good and reliable in some countries, partial and not timely in others</td>
</tr>
<tr>
<td>Special studies</td>
<td>Variable, usually little comparability</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
</tr>
</tbody>
</table>
Barriers and challenges

• Variety of data and sources providing different information:
  – administrative registries, censuses, LFS, etc.
  – strengths and limitations of each source
  – fragmentation, quality, reliability and timeliness of data problems

• Comparability problems often arise
  – content and quality across countries, sources and over time
  – classification according to international standards (occupation, industry, education)

• Potential social and political power of data

• Few monitoring system and evidence-based studies on HRH

• Timeliness

Country example and Data quality?

Comparison of the ratios of physicians to nurses and midwives, according to source of data, 12 countries

\[ y = 0.59x + 0.19 \]

\[ R^2 = 0.73 \]

Skill mix in Indonesia (districts)

Average ratio nurse/physician

Ratio nurse/physician

10000 20000 30000 40000 50000 60000 70000

Nurses

193 2438 2494 4241 5204 5444 5546 7001 9301 9542 9923 10236 11016 12838 13508 26871

Country examples - contd

Renewal of the workforce in Brazil

HRH and Health expenditure

Skill-mix census data 1990's and 2000

Country examples - contd
Monitoring HRH: What can be done?

- Identification of information gaps
- Identification of potential information sources
- Compilation and analysis of data from existing sources
- Use of available information before collecting more
- Combination / Triangulation
- Building network of users and producers
- Present the information in a simple and appropriate way
ANNEX 3: Health Information Systems

Monitoring the performance of the health information system
or "qui custodet ipsos custodies?"

The health information system, an essential component of the health system as a whole, has four key functions, namely:
- Data generation
- Data management (storing, processing, dissemination, communicating and sharing)
- Data analysis and reporting
- Data use.

In fulfilling its functions, the health information system draws upon a number of sub-systems which include:
- Vital statistics (births, deaths) generated through civil registration and censuses;
- Data collection based on patient and service records and reporting from community health workers, health workers and health facilities;
- Epidemiological surveillance and response systems for notifiable infectious diseases, environmental conditions and risk factors;
- Household surveys generating data on use of health services and community or individual health-related behaviours;
- Administrative systems such as health budgets, infrastructure, personnel, drugs, equipment, supplies etc.
- National health accounts
- Modelling, estimates and projections.

The health information system is a component of the broader statistical system that integrates data from sectors beyond health. The national statistics office is generally responsible for the conduct of censuses, vital registration of births and deaths, and household surveys. The Ministry of Health has responsibility for service statistics, for surveillance and response and for administrative data. Disease-focused programmes such as malaria control or child survival use different combinations of these subsystems to generate the data they need. Data on mortality may be taken from the vital registration system, on use of services from household surveys and on availability of services and quality of care from service statistics.

Health planners and decision-makers need different kinds of information including:
- health determinants (socio-economic, environmental behavioural, genetic factors) and the contextual environments within which the health system operates.
- inputs to the health system and related processes including policy and organization, health infrastructure, facilities and equipment, costs, human and financial resources, health information systems;
- the performance or outputs of the health system such as availability, quality and use of health information and services; and
- health outcomes (mortality, morbidity, disease outbreaks, health status, disability, wellbeing) and
- health inequities, in terms of determinants, coverage of use of services, and health outcomes, and including key stratifiers such as sex, socio-economic status, ethnic group, geographic location etc.

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In order to be able to generate this range of data, each country should have in place a minimum set of data collection platforms as described in Box 1

**Box 1: Essential data collection platforms**

All country health information systems should draw on a set of core data collection platforms. The extent to which each platform is fully functioning in a country will vary. In some settings, certain platforms will be totally absent or rudimentary; elsewhere they may exist but require strengthening. However, the aim of health information system reform should be to ensure that each data collection platform is available to a minimum extent.

1. A decennial census. The census should include questions on deaths in the household by age and sex. This will provide information on age and sex patterns of mortality at national and subnational levels. In addition, consideration should be given to revisiting households which have reported the death of a woman of reproductive age to assess whether this was a pregnancy-related death.

2. A system of comprehensive, ongoing monitoring of births and deaths, with medical certification of cause of death. Where it is not feasible in the short run to establish a system with universal coverage, consideration should be given to setting up sample vital registration systems coupled with verbal autopsy.

3. A surveillance and response system focused on epidemic and vaccine preventable diseases (cholera, HIV, polio) as well as on emerging diseases (SARS).

4. A programme of household surveys designed to measure use of health care services and important household or individual behaviours such as infant care and high risk behaviours. This programme should cover both demographic and health surveys and other surveys that can be used to generate health-related information, such as living standards surveys. In drawing up a national survey programme, efforts should be made to ensure appropriate periodicity of key indicators.

5. A system of service-generated data derived from facilities and patient-provider interactions covering care offered, quality of care, treatments administered etc. Where appropriate, such service statistics can be used to develop population-based estimates of coverage of immunization, maternity care etc. Although such estimates may be imprecise due to the need to estimate denominators and possible double counting, they do provide a cheap and regular source of information. Comparisons with occasional household surveys can permit adjustment factors to be applied and thus increase the availability of data from different sources.

6. Public health mapping of facilities and services at national and district levels. Mapping the availability of specific interventions can provide important information from an equity perspective and can help promote efforts to ensure that needed interventions reach peripheral areas and do not remain concentrated in urban centres.

7. A programme of behavioural surveillance, focusing especially on risk factors such as smoking, unsafe sex, malnutrition

8. A system of national health accounts.

9. Linked financial and management systems able to provide information about health system operations (costs, human resources, drugs equipment and supplies).

10. Modelling, estimates and projections

A set of metrics for monitoring the performance of the health information system can be based on a classic framework of inputs, process, outputs, outcomes and impact indicators (see Table 1). Several indicators, especially those at the input, process and output levels, are simple yes/no
indicators to be completed at the national level. At the outcomes and impact levels, the health information system can be assessed in terms of its ability to generate indicators that meet specific criteria of data quality including:

- **Data coverage, periodicity and timeliness** - the production and dissemination of sound health-related data across all dimensions in a timely way;
- **Quality of the data** - information available to users to help them assess the data, including meta-data, definitions, sources, etc..
- **Equity dimension of the data** - disaggregations by major population groups, geographically, gender, wealth quintiles etc.
- **Integrity of the data** - the confidence of the user community in the data produced and the transparency and openness of data collection approaches;
- **Access by the public** - the dissemination of data to users in a convenient and equitable manner targeted to diverse users of information; and
- **Use of the data** - for decision-making across all levels of the health care system including for resource allocation and strategic prioritisation.

An example of a scoring system is provided in Table 2. Scoring would be completed by informed respondents, knowledgeable about the indicator in question and able to attribute a score in an objective and unbiased way. Each criterion is assessed against a four-level scale to which are attached benchmark descriptions: level 4 is highly developed, level 3 moderately well developed, level 2 is developing but with many weaknesses and level 1 is underdeveloped.

The assessment tool is intended to serve both national management purposes as well as to enable cross-country comparisons. At national level, the assessment framework provides a snapshot of crucial aspects of the health information system, highlights strengths and weaknesses and provides an ongoing monitoring tool. At international level, it is important to identify a common set of indicators common to all countries.

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8 IMF General Data Dissemination System Site
<table>
<thead>
<tr>
<th>Table 1 - Indicator framework for monitoring and evaluation of health information system</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INPUTS</strong></td>
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</tbody>
</table>
| | ▪ Institutionalization of data collection mechanisms, both,
existence of mechanism and quality, including:
- Household survey
- (Sample) vital registration or demographic surveillance systems, sentinel surveillance for specific conditions
- Routine HMIS
- National health accounts
- Integrated Disease Surveillance and Response

<table>
<thead>
<tr>
<th>IMPACT</th>
<th>Reporting on health indicators, including MDGs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>▪ Strong mortality, morbidity, incidence, prevalence reporting</td>
</tr>
<tr>
<td></td>
<td>▪ Reporting on MDG indicators for health and proximate indicators - timely, accurate, disaggregated</td>
</tr>
<tr>
<td></td>
<td>▪ Reporting on other health indicators as timely and accurate as possible, disaggregated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IMPACT</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>▪ Data use for health action: investment, programme design, policy making, care</td>
</tr>
</tbody>
</table>
Table 2: Scoring system for assessment of health information system

<table>
<thead>
<tr>
<th>Indicator</th>
<th>&lt;5 mortality</th>
<th>Maternal mortality</th>
<th>HIV prevalence 15-24 years</th>
<th>Other priority areas of measurement or health indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Periodicity</td>
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<tr>
<td>Timeliness</td>
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<td>Quality</td>
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<td>Equity</td>
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<td>Integrity</td>
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<tr>
<td>Access</td>
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<td></td>
</tr>
<tr>
<td>Use</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Overall score</td>
<td></td>
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</table>

An ordinal score 1-5 with 1 indicating low development, poor performance and 4 high development:

- Coverage - data are representative of the total population of the country
- Periodicity - data are available predictably and regularly
- Timeliness - data are available within a reasonable time of data collection; there are no undue delays between data collection and availability of data for dissemination and use
- Quality - information available to users to help them assess the data, including meta-data, definitions, methodologies, sources,
- Equity - disaggregation for relevant population groups are possible etc;
- Integrity - the data collection process is open and transparent and users can have confidence in the validity and reliability of the data;
- Access - data are shared and disseminated to users in a convenient and equitable manner with appropriate targeting to diverse audiences;
- Use - data are used in a transparent way for decision-making and resource allocation.

For each cell vignettes will be developed to facilitate the scoring and enhance comparability of scores in space and time. This work will be addressed by the Health Metrics Network. The assessment should lead to a HIS overall performance score.

**Health system metrics for HIS**
Although the HIS score could be used as a single indicator as part of the core set health system metrics, it may also be worthwhile to explore if consensus can be reached on one or two indicators that are easier to monitor and are a good description of the health information component of the health system.

One way is to simply consider outputs of the HIS, accurate and complete data on key indicators such as the MDG health indicators. The availability of empirical data on child mortality, maternal mortality, nutritional status, HIV prevalence, TB control, immunization coverage within the last 3-5 years could form the basis of such an indicator. Obviously, a recent DHS would significantly boost the score, which not necessarily is a strength of HIS, but additional information could be included to get around this.

Another way is to look at the outputs of the different components within a specified time period. The existence of a national report on service statistics, a national survey on health that includes health (specific criteria can be set), an operational surveillance system, vital registration or sample registration data, a census.

Other components such as data use and efficiency are more difficult to measure. It may be that data availability and production of information are good proxies but this will have to be investigated.
The health system as a whole can be classified into four broad and inter-related functions. One of these is the provision of health services. A lot has been published on monitoring the provision of health services. Is an area where the problem is more the excess and imbalance of indicators available, and their generally programmatic rather than system or population-wide perspective.

**Some general considerations**

- Different users of information exist. This note considers information needs of users at 3 levels - district managers (for more strategic decision-making rather than day to day management); national level decision makers, and lastly global monitoring needs.
- Users at different levels do have different information needs for different purposes, but these are often over stated.
- How will these data be used? The potential uses of such information include: monitoring of policy implementation; problem identification; creating incentives for change; mobilising resources, influencing resource allocation decisions and accountability.
- If going for a minimum data set to monitor on a regular basis, presumably one is looking for some critical measures that alert decision-makers to incipient problems or help identify desired achievements.
- Strictly speaking, one is indifferent to how services are organised if all is going well. In the first instance, it is more important to capture a sense of trends in what is being achieved (coverage and performance), rather than indicators of how services are organised, that might (or might not) explain ‘why’ these trends are happening - these sorts of measures only being needed where problems are detected.
- Regards service delivery in particular, it is worth emphasizing that one is not trying to capture individual programme performance but rather overall system performance.
- Very importance to capture private as well as public provision.
- Obviously want indicators that fulfil normal criteria - valid, reliable, sensitive, relevant.
- Desirable that change in one direction means the same everywhere eg more means better.
- Obviously should be as simple and low cost as possible, subject to being fit for purpose.
- As far as is possible, the core set of indicators recommended for different levels should be the same, to facilitate comparison
- Can one indicator serve two purposes?
- Summary v disaggregated - pro's and cons
- periodicity

**What does one need to know?**

There are several elements of service provision to consider

- The population 'coverage' achieved

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• The performance of provider institutions - their quality, responsiveness, efficiency
• The organisation and management of providers

Coverage
Different definitions of coverage are used. There are different dimensions - availability or service provision is the easiest to measure. Coverage defined as service utilization is also influenced by those harder to measure concepts such as acceptability, affordability, accessibility (and there are numerous subdivisions of accessibility) etc.

Key concerns:
1. Ideally, should capture the extent to which those who need care are actually getting it - raises challenges in denominator definition. Measurement of need however is a complex issue.
2. Is also important to detect inequalities in coverage - geographical; age, sex, income
3. Which interventions to measure? The interventions that are measured should make major contribution to population health

Considerations
• Coverage information should be population based
• The service delivery cake can be cut in many ways. The following dimensions merit consideration:
  o preventive versus curative care; what about rehabilitation and promotion
  o personal v population based service delivery
  o care for communicable v non-communicable diseases v injuries
  o community versus institutional delivery
• Measures of access as a proxy for service delivery: resource availability; physical access; affordability; acceptability; Access however is a much more complex and variable concept than availability, which could be, vice versa, used as a proxy for access
• Utilization as a proxy for service delivery or rather as a proxy for access
• What about capturing some sense of changes in demand / health care seeking behaviour?
• What about adherence?

Existing indicators: uses and limitations as proxies for service delivery more generally?
• Attended delivery use indicator
• Immunization - complete; DPT3; measles also service use
• TB case detection service use
• Case completion of detected TB cases service use or even adherence
• Iodised salt availability or supply
• Bed nets use
• Utilization

Provider performance
Key concerns:
   1. Technical quality
   2. Responsiveness
   3. Efficiency

Considerations
   - Individual facilities v overall

Existing indicators: uses and limitations as proxies for service delivery more generally?
   - Efficiency: ALOS; bed occupancy etc. Tells nothing about effectiveness
   - Quality: e.g. % Caesarian sections; this one highly contentious as a quality indicator; degree of appropriateness as a quality indicator is inversely proportional to overall c-section rates, the higher the rate, the less likely this is to be a good indicator of quality; readmissions; safe injection practices
   - Responsiveness: waiting lists; patient satisfaction

Organisation and management of services
On much more dodgy ground here - much less certain evidence about what is desirable, and measurability a major challenge. Lots of opinion, and some more or less better informed or 'received wisdom'. Worth distinguishing between
   - Existence of selected desirable structures / arrangements
   - Indicators of operational failure
Could try indicators of internal quality management e.g. % of facilities that conduct regular audits of adverse events

Considerations
Are myriad differences in organisational structures, processes and incentives.

Key structural concern is often trends in the public-private mix of service / facility availability - but nothing says more public is necessarily better in all circumstances…

% unlicensed providers / drug sellers
% expenditure on inpatient v ambulatory care (hard to get); urban v rural health care
Staff imbalances: Trends in urban / rural ratios of health workers / 100,000

Are some managerial processes that received wisdom associates with higher chances of better performance:
   - % time drug stock outs for key drugs; % expired drugs
   - Drug pricing: % higher than best global price - measure of stewardship
   - % vehicles off the road
   - % time key pieces of equipment are operational eg cold chain fridges; key lab reagents
% posts vacant (only public sector)
Staff / facility supervision visits per year; availability of treatment protocols in facilities
Staff turnover - internal; external
Absenteeism rates
Functional licensing system - for private as well as public providers
Staff / facility performance sanctions or incentives available and used
ANNEX 5: CPIA

Indicators for Assessing Health Systems: Policies and Institutions

There is a serious risk that many countries will not achieve the MDGs for health by 2015, if trends in indicators continue to evolve as during the 1990s. Progress in reducing under-five mortality has been particularly slow, and has become slower in the 1990s, compared to the 1980s. Sub-Saharan Africa is lagging badly across all the health MDGs but especially on under-five mortality reduction. All regions face challenges for achieving some MDGs, including regions with several middle-income countries. Overall, however, it is the poorest countries that are progressing least quickly.

It is now widely recognized that effective interventions exist for combating malnutrition, child mortality, maternal mortality, and communicable diseases. But, they are not being accessed by the very people who can benefit most from them—the poor especially. A recent World Bank study estimated that if universal coverage rates of a handful of key child health interventions could be achieved, their impact could be transformational: under-five deaths worldwide would fall by nearly two thirds, and therefore meet the MDG target. Maternal mortality rates would fall by three-quarters, thus meeting the MDG target, by “scaling up” a handful of key maternal mortality interventions such as improved access to comprehensive obstetric care.

Some have argued that the cause of low coverage rates of interventions is due mainly to low government spending. But one of the key findings of the World Bank's “The Millennium Development Goals for health – Rising to the Challenges” on accelerating progress towards the health MDGs is that more spending on health is not enough. In countries with poor governance and economic management, as measured by the Bank's Country Policy and Institutional Assessment index (CPIA), additional government spending alone on health will have little or no impact on outcomes such as child mortality, maternal mortality, malnutrition, or tuberculosis deaths, without improved policies and institutions—within and beyond the health sector. Health systems research and monitoring and evaluation need to focus on policies and institutional constraints, starting with defining them at national and sub-national level.

The World Bank's CPIA is a composite index that measures the extent to which a country's policies and institutions are conducive to fostering sustainable growth, poverty reduction, and the effective use of development assistance. An assessment of health policies and institutions is included in one of fifteen components that make up the index. Within the overall CPIA, the assessment of the health sector thus has a very small weight, and it does not necessarily reflect well the quality of policies and institutions for health. The CPIA is nevertheless a useful indicator, as overall governance issues, such as those concerning economic management, public sector administration, and policies for social inclusion, will have an impact on health, independently of the health sector itself.

We propose the development of a health sector-specific CPIA based on an assessment of policies and institutional capacity in health. The first step in developing the health CPIA involves agreeing on the core functions and measuring instruments, such as precise definitions of policies and implementation, and detailed questionnaires for assessing policies and institutions. The

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second step consists of developing scales for a qualitative assessment of the adequacy of policies and the level of implementation, along the lines of the Bank’s CPIA scales for rating countries. Finally, a set of ratings will be derived from broad clusters of functional areas that can give an overall metric of the appropriateness and adequacy of policies and institutions in the health sector.

The primary purpose of these ratings is not to provide an instrument for ranking of countries according to their performance or for inter-country comparative analysis. Rather, the intention is to achieve consensus on a set of summary assessments that can be used by countries to monitor aspects of health systems critical for achieving health outcomes, and provide actionable information on which aspects of health systems are in greatest need for further in-depth analysis and reform.

An Example: Policies and Institutions for Health Status Monitoring

First step: define the elements included in this function, such as:

- Existence and appropriateness of guidelines for measuring and evaluating health status
- Existence of a disease surveillance system capable of identifying threats to public health
- Capacity to analyze the nature and magnitude of health threats
- Integration of surveillance systems at sub-national levels
- Existence and completeness of vital registration
- Use of health status profiles to prioritize and allocate health interventions
- Etc.

Second step: A CPIA-type assessment will be applied to the core functions, and ratings will be developed for each one of them. Following the CPIA methodology, ratings will be developed on a scale from 1 (very weak: no or few relevant policies; little or no implementation) to 6 (very strong: fully developed appropriate policies; high level of implementation). The degree to which policies exist and are being implemented will be assessed against a set of model standards. The assessment takes into account (1) the extent of the existence of relevant policies and (2) the degree of implementation of the policies, and be aggregated into a composite score of each of the indicators. The assessment can be applied by those knowledgeable about the health system through the administration of a questionnaire.

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<th>Policies</th>
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<td>Very weak</td>
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<tr>
<td>Moderately weak</td>
<td>3</td>
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<tr>
<td>Moderately strong</td>
<td>4</td>
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<tr>
<td>Strong</td>
<td>5</td>
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<tr>
<td>Very strong</td>
<td>6</td>
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A model standard (“very strong”) for health situation monitoring and analysis would be as follows:
- Guidelines for measuring health status at all levels of the public health system
- A comprehensive and integrated national system for monitoring health status, particularly aimed at identifying inequities
• Specific protocols to protect the confidentiality of personal data
• Health status profiles that influence the allocation of resources and the prioritization of community health problems
• Uses trend analysis of health status, correlations with risk factors, equity analysis, and other relevant variables.

Third step: aggregate scores on all components within the health situation monitoring cluster to derive at the index value.

The work on defining core health system functions and the questionnaire for carrying out CPIA-type assessment for health systems is in currently under development.
Assessing policies and institutions in health systems

Discussion draft
October 5, 2004

Ed Bos and Mariam Claeson
Health, Nutrition, and Population
The World Bank

Key finding of Bank report on MDGs (Rising to the Challenges)

- Additional government spending on health has positive impact on health outcomes when countries have good governance and institutions

- Based on overall CPIA scores
What is the CPIA? (i)

Country Policy and Institutional Assessment

What is the CPIA? (ii)

- A composite index
- Measures the extent to which a country’s policies and institutions are conducing to fostering sustainable growth, poverty reduction, and the effective use of development assistance
- 15 components
- Countries are rated
What is it used for?
- Country ratings on CPIA determine eligibility for IDA credits
- CPIA is used to allocate IDA credits to country programs ($$$)
- Ratings are done with assessments scales and benchmarks
- Ratings are not determined by outcomes
- How well does it work?

CPIA Components
Ratings are made for:
- Economic management (macroeconomic management, fiscal policy, debt policy)
- Structural policies (trade, financial sector, business regulatory environment)
- Policies for social inclusion and equity (gender equality, equity of public resource use, social protection and labor, building human resources)
- Public sector management (ie, transparency, accountability and corruption in public sector; quality of public administration)
Can we have a CPIA for health?

- Overall CPIA is a useful indicator of overall governance, public sector management, policies for social inclusion.
- Health is included in the CPIA, but only as 1/3 of one of 15 components.
- Impact of health policies, institutions, rather than overall CPIA?

What are we proposing

To develop a set of indicators that would help countries assess whether they have appropriate policies and well-functioning institutions for making accelerated progress towards better health outcomes.
What for:
- Standardized assessment
- Gaps analysis
- Actionable information for further in-depth analysis and reform

What not for:
- Ranking countries
- Allocating resources
We need a framework

- To determine which aspects of the health system will be assessed

Frameworks for measuring health systems functions

- WHO 2000 WHR
- PAHO/WHO: Essential Public Health Functions (also: CDC)
- Health system constraints (Travis et al., 2004)
- World Bank (2002) public health functions
- Here: expanded list of World Bank to include other functions of health systems
What to assess

- Existence of policies and effectiveness of institutions
- How health functions are carried out by governments reflects the appropriateness of qualities and institutions

Six broad clusters of health functions

- Policy development
- Collecting and disseminating evidence for health policies, strategies, and actions
- Financing and management of health services
- Prevention and control of diseases
- Intersectoral action for better health
- Human resource development and capacity building
Functions include range of activities (example for #1)

Policy development:
- Health regulation and enforcement (*)
- Evaluation and promotion of equitable access to necessary health services (*)
- Ensuring the quality of personal and population-based health services (*)
- Health policy formulation and planning
- Pharmaceutical policy, regulation, and enforcement

Functions include range of activities (example for #4)

Prevention and control of disease
- Surveillance and control of risks and damages in public health (*)
- Management of communicable and non-communicable diseases
- Health promotion (*)
- Behavior change interventions for disease prevention and control
- Reducing the impact of emergencies and disasters on health (*)
CPIA approach: assessment scales

<table>
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<tr>
<th>Policies</th>
<th>Implementation</th>
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<tr>
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<td>Very strong</td>
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Applying the criteria

Example: Model standard ("very strong", rating of 6) for health situation monitoring and analysis

- Guidelines for measuring health status exist at all levels of the public health system
- A comprehensive and integrated national system for monitoring health status is in place, particularly aimed at identifying inequities
- Specific protocols exist to protect the confidentiality of personal data
- Health status profiles that influence the allocation of resources and the prioritization of community health problems are available
- Trend analysis of health status, correlations with risk factors, equity analysis, and other relevant variables is used
etc
Summary indicators

- Small number
- Indicative of strengths and weaknesses
- Quantitative

Example of indicators

Example: Completeness of health situation monitoring and surveillance
  - Completion of vital registration – proportion of birth and deaths registered within defined time frame. (Instrument and sources: assessment of completion based on record check; household surveys; UN Statistical division).
  - Accuracy of cause of death registration- proportion of deaths accurately classified (Source: WHO).
  - Notification rate of communicable diseases (TB, HIV/AIDS, other). Instrument and sources: country surveillance systems; WHO for TB; UNAIDS for HIV.
Next steps

- No results yet – need to develop assessment tools
- Apply to countries?
- Your views
ANNEX 6: Proposed stewardship indicators

Health system indicators: governance and stewardship

Key words for governance and stewardship: leadership, direction, policy, planning, oversight, accountability, regulation.

1. Existence of a health system strategic plan developed or revised in the last 5 years or less and with annual adjustments as indicated based on current information.
   Measurement: Should be available at MOH central level for review.
   Addresses: planning

2. Administrative and clinical guidelines, reviewed and revised as needed within the last 5 years, available to staff at each health facility and level of the health care system.
   Measurement: Should be available at MOH central and sub-national levels for review; facility surveys
   Addresses: oversight, guidance, evidence based practice,

3. Existence of a health system quality assurance plan addressing quality issues at each level of the health care system.
   Measurement: available for review at MOH central and sub-national levels for review, facility surveys
   Addresses: oversight, accountability

4. Existence of a functioning licensing and accreditation system for health professionals and health facilities.
   Measurement: Existence of licensing, accreditation bodies; review of records on licensing/accreditation; facility surveys
   Addresses: accountability, regulation

5. Existence of a national health policy defining the role and responsibilities of the public and private health sectors.
   Measurement: Review of MOH governing documents
   Addresses: leadership, accountability

6. Existence of a functioning system to ensure accountability for services and functions provided at each level of the health system, public and private.
   Measurement: Review of records of external audits performed
   Addresses: oversight, accountability, regulation

7. Existence of a system to ensure the staff orientation and training for service responsibilities for which they are responsible.
Measurement: Existence of staff in-service orientation and training program, training records, facility surveys
Addresses: oversight, accountability

8. Proportion of top ten external sources of funding that are coordinated with an agreed government plan

9. Funding directed to special initiatives compared with overall health budget.

10. Existence of taxes and tariffs on essential commodities
## Proposed health system metrics - summary of discussions

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<tr>
<th>Metric</th>
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<tr>
<td><strong>FINANCING</strong></td>
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<tr>
<td>Health expenditure - per capita and as a percentage of GDP</td>
<td>National Health Accounts, but data are available for much less than half of the low income countries. WHO produces annual estimates for all countries.</td>
<td>Although it is not necessarily true that increasing expenditure is desirable in all settings, there is an unequivocal relationship between health expenditure per capita and health levels. Although there is concern in many of the OECD countries that expenditures are rising too fast, in poor countries it is generally desirable to increase health expenditures so as to reach better health system outcomes.</td>
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<tr>
<td>Total government share in health budget</td>
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<tr>
<td>Proportion of the population incurring catastrophic health expenditure and the proportion impoverished as a result of out-of-pocket payments at time of delivery.</td>
<td>Requires a household expenditure survey of some form. Methodology is defined, but countries typically do not conduct annual surveys of this nature</td>
<td>This indicates the extent to which the financing function contributes to financial fairness. It would also be important to look at percent not seeking care due to high costs</td>
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<tr>
<td>Proportion of general government expenditure devoted to health.</td>
<td>Probably the simplest to collect routinely, although it is getting more difficult with decentralization and budget or sectoral support. Important but difficult to obtain, needs development.</td>
<td>As with GDP, it is not necessarily desirable to increase this proportion in all settings, but in many low income settings the proportion attributed to health can be considered to be too low. The distribution of funds allocated to public and private health services is needed. External sources as a % of Total Health Expenditure has previously been used as an indicator of sustainability but given current desire to increase external funding to LICs its interpretation may be unclear.</td>
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<tr>
<td>Proportion allocated to public health services</td>
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<td>Total government expenditure (recurrent non wage) as % of total health expenditure and external sources as % of total health expenditure</td>
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<tr>
<td>The share of total health expenditure that is prepaid / out of pocket.</td>
<td>Comes from National Health Accounts, but data are available for much less than half of the low income countries. WHO produces annual estimates for all countries.</td>
<td>This indicates the degree of risk pooling and solidarity. In poor countries the level of prepayment is extremely low so an increase is desirable. On the other hand, it is not necessarily true that 100% prepayment is desirable. Most</td>
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<th>Metric</th>
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<tr>
<td>Metric Measurement Notes</td>
<td>countries impose some form of payment at point of service to discourage &quot;over-use&quot;. This indicator is highly correlated with the second financing indicator, but is harder to put together as it requires complete NHA data Needs further work - % of population incurring and impoverishing by catastrophic health expenditure (risk pooling dimension)</td>
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<tr>
<th>INFORMATION</th>
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<td>HIS Functionality Index</td>
<td>Needs development but is essential Structure inputs Process, outputs Outcome See below for contents of the components</td>
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<td>Subjective assessment by key informants</td>
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<td>Could also be milestone based</td>
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<tr>
<td>Strength HIS structure (component 1 of index)</td>
<td>Key informants, relatively easy to assess</td>
<td>Existence coordinating body, HIS plan, training HIS personnel in key areas</td>
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<tr>
<td>Functioning data collection components HIS</td>
<td>Coverage VR and quality causes of death attribution; census; alignment of immunization data derived from routine HMIS and household survey</td>
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<td>Outcome HIS</td>
<td>Assessment</td>
<td>Child mortality last 2 yrs, at least 2 points in time, disaggregations; maternal mortality (recency, disaggregations); HIV prevalence (annual); smoking prevalence (recency), cancer registry</td>
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<tr>
<td>Proportion of deaths that are counted</td>
<td>Vital registration or sample registration data;</td>
<td>Fits well with the 'count the dead' initiative. Could also be extended to births. An issue is how to rate the Sample Registration System. While this does not 'count the dead' it could be indicative of a fairly well functioning HIS. Need to think about SRS</td>
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<tr>
<td>National coverage of representative vital event registration (birth death by age and sex (complete or sample))</td>
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<tr>
<td>Number of national data collection efforts with consistent results in last decade: child mortality, maternal mortality, child nutrition, immunization</td>
<td>Review of existing data</td>
<td>Availability of key health indicators: child mortality</td>
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<td><strong>HUMAN RESOURCES</strong></td>
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<td>Total stock of health workers per 100,000 population</td>
<td>Sources: Ministry of Health, District information systems, SAM Focus on doctors and nurses (separately) Currently in WHO database for physicians, nurses, midwives, dentists</td>
<td>One issue is whether to include all health workers, only core categories (doctors, assistant doctors, nurses, midwives), or also paramedical workers (lab technicians, auxiliary staff etc.) Distribution within country</td>
</tr>
<tr>
<td>Ratio health workers in capital (large cities) outside large cities per 100,000 population Proportion in rural areas to major urban versus rest of country ratio</td>
<td>Sources: Ministry of Health, District information systems, SAM Focus on doctors and nurses (separately) Only need capital / city and national data</td>
<td>Simplest measure to capture distribution</td>
</tr>
<tr>
<td>Skill mix: doctor / nurse ratio</td>
<td>Source: Ministry of Health</td>
<td>Simple. Whether or not this is a useful indicator depends on whether there is some idea of a desirable ratio – and the extent to which the country relies on other categories of staff (eg. Doctor assistants). Can be derived from first measure</td>
</tr>
<tr>
<td>Annual output / production of health workers by training institutions per 100,000 population</td>
<td>From training institutions, partial database available on institutions but limited data on output Focus on doctors and nurses (separately)</td>
<td>Ideally this indicator would be combined with one addressing loss / depletion of health workers indicator - death, retirement, migration, leaving the health sector etc. but this may not be available for most countries.</td>
</tr>
<tr>
<td>Public sector health worker salary as proportion of GDP per capita (ILO) Or, Ratio of public sector doctor to public sector nurses salary to country average wage</td>
<td>ILO keeps database on average wages, but may not provide specific data on public sector health workers.</td>
<td>Which health worker to choose? Certified nurse? Also important to know about private public salary differential, urban rural salary differential, but those are harder to measure.</td>
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<td><strong>SERVICE DELIVERY</strong></td>
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### Metric Measurement Notes

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<tr>
<td>Number of outpatient health facilities per 100,000 population</td>
<td>MOH Available for most countries, but no central database</td>
<td>Distribution measure would be desirable, to measure inequality (e.g. capital / non capital). Not considered very useful as metric</td>
</tr>
<tr>
<td>Number of hospital / inpatient beds per 100,000 population no</td>
<td>MOH Available for most countries. Database?</td>
<td>Distribution also relevant Not considered very useful as metric.</td>
</tr>
<tr>
<td>Contacts per health worker</td>
<td>Outpatient service records and number of health workers providing such services</td>
<td>This is a possible measure of efficiency.</td>
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<tr>
<td>Proportion of districts with minimum infrastructure for health</td>
<td>Survey of districts Sample survey</td>
<td>Define district as population with 200,000 or more What components - electricity, communication infrastructure (short wave radio, internet, cell phone, etc.), theatre, are included?</td>
</tr>
<tr>
<td>Proportion of health facilities with minimum infrastructure</td>
<td>Survey of districts</td>
<td>Components - Caesarean section, blood transfusion, HIV testing, X Ray, oxygen</td>
</tr>
<tr>
<td>Proportion of districts with key operational services</td>
<td>Survey of districts</td>
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<tr>
<td>Proportion of districts with at least one EOC facility per pop (recommended per 500,000 pop comprehensive) (injuries, severe malaria)</td>
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<tr>
<td>Access to essential drugs</td>
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<tr>
<td>Prop of districts with community outreach services</td>
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In addition to the above table, the group also identified the following areas as missing. These are: stewardship and efficiency. The following indicators were discussed within the working group, but it was felt that these areas require a significant amount of further work before concrete recommendations can be made.

**Stewardship, potential indicators:**
1. Proportion of (national investment) to 10 external sources of funding that are coordinated with an agreed upon plan
2. Removal of taxes and tariffs on essential commodities
3. Existence of a functioning licensing and accreditation system (5 point scale, tbd)

**Efficiency, potential indicators:**
1. No. of contacts per full time equivalent per staff (technical efficiency)
2. % of spending going to public health (allocatative efficiency)
3. % of first contacts that take place at primary care level
ANNEX 8: Participant list

Health Metric Systems: Monitoring the health system in Developing countries, 6-7 October 2004, Glion, Switzerland

List of Participants

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Address</th>
<th>Tel:</th>
<th>Fax:</th>
<th>Email:</th>
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