



Support tool

to assess health information systems
and develop and strengthen health
information strategies



**World Health
Organization**

REGIONAL OFFICE FOR

Europe

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Abstract

During its meeting of December 2013 the Standing Committee of the Regional Committee asked the WHO Regional Office for Europe to develop a practical support tool for Member States. This tool is intended to assist Member States in developing and improving their national health information systems through the development of a national health information strategy, in order to support them with implementation of Health 2020. It is based on existing tools developed by WHO's Health Metrics Network. Good health information supports public health policy-making: it helps Member States identify Health 2020 priority areas for action and evaluate the effects of Health 2020-related policies and interventions.

Keywords

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Introduction

During its meeting of December 2013 the Standing Committee of the Regional Committee asked the WHO Regional Office for Europe to develop a practical support tool for Member States. The tool was intended to assist Member States in developing and improving their national health information systems (HIS) through the development of a national health information strategy, in order to support them with implementing Health 2020.¹ Good health information supports public health policy-making: it helps Member States identify Health 2020 priority areas for action and evaluate the effects of Health 2020-related policies and interventions.

This support tool was developed by a working group consisting of representatives of 17 Member States, co-chaired by Professor Hans van Oers, Chief Science Officer, National Institute for Public Health and Environment (RIVM), from the Netherlands and Dr Anna Korotkova, Director's Advisor on International Affairs, Federal Research Institute for Health Organization and Informatics of the Ministry of Health, the Russian Federation, together with Mr Nick Fahy, an external consultant, and the WHO Secretariat. The tool was based to a large extent on existing frameworks and tools developed by the Health Metrics Network (HMN)² (see Box 1).

Further tools available to support the implementation of Health 2020 in the WHO health information and evidence portal

In September 2014 the WHO Regional Office for Europe launched the health information and evidence portal.³ This is an activity of the European Health Information Initiative – a multipartner network – aimed at improved knowledge sharing, capacity-building and harmonization of efforts and outputs in the field of health information in Europe.

The portal is structured according to policy-relevant themes, of which Health 2020 is one; other themes include noncommunicable diseases (NCDs), antimicrobial resistance and obesity, physical activity and nutrition. For each of these, the portal makes available both quantitative (such as interactive data visualizations and country profiles) and qualitative information, which comprises organization, networks and projects; tools for monitoring and policy support; sources of evidence and good practices; and policy documents and analysis reports. It thus provides further resources and tools that support the implementation of Health 2020, and more will be added over time as the portal is updated regularly.

¹ Health 2020: a European policy framework and strategy for the 21st century. Copenhagen: WHO Regional Office for Europe; 2012 (<http://www.euro.who.int/en/health-topics/health-policy/health-2020-the-european-policy-for-health-and-well-being/publications/2013/health-2020-a-european-policy-framework-and-strategy-for-the-21st-century>, accessed 7 November 2014).

² HMN toolbox [website]. Geneva: World Health Organization; 2014 (<http://www.who.int/healthmetrics/tools/en/>, accessed 7 November 2014).

³ Health information and evidence portal [website]. Copenhagen: WHO Regional Office for Europe; 2014 (<http://test.portal.euro.who.int/en/portal/>, accessed 7 November 2014).

Box 1. Content from HMN tools and newly added content

The existing frameworks and tools developed by HMN (available via the HMN website²) were used as a basis for this tool – in particular:

- assessing the national health information system: an assessment tool, version 4.00;
- assessment score sheet;
- guidance for the health information systems (HIS) strategic planning process: steps, tools and templates for HIS systems design and strategic planning.

Large parts of the text in this support tool are directly derived from these HMN tools. For the purpose of the support tool the contents of the HMN assessment tool and HIS strategic planning guidance document were merged and made more concise: only those tables, figures and annexes most important for understanding the entire assessment and strategy development process were reproduced. More examples and supporting information are thus available in the original tools.

The original HMN tools are mainly designed for use by low- and middle-income countries. To make this support tool more suitable for Member States in the WHO European Region, information relevant to the European context was added in several sections, mostly in the form of boxes. Indicator sets from WHO, the European Commission and the Organisation for Economic Co-operation and Development (OECD) currently in use in the Region were also included. Finally, a separate chapter on translation of evidence into policy was added to provide users of the tool with additional resources to enforce this essential phase in the health information chain.

Using the support tool

This tool covers all the phases related to health information strategy development – from assessment of the current state of HIS through strategy development and implementation to evaluation. Moreover, it addresses all the different elements of HIS, such as governance, databases and resources. This allows for flexible use of the tool: Member States can either apply it as a whole or pick out specific phases or elements that require particular attention or have been prioritized in their national context. The support tool has been set up to accommodate the diverse situations of HIS and strategies within the WHO European Region. It is designed to assess national HIS but can also be used, with relatively easy adaptations, for assessment of subnational HIS. The next section provides an overview of the main aims and contents of the different chapters of the tool.

Structure and contents of the support tool

The process of designing and implementing strengthened HIS is defined in this tool, in line with the HMN assessment tool, as consisting of three phases.

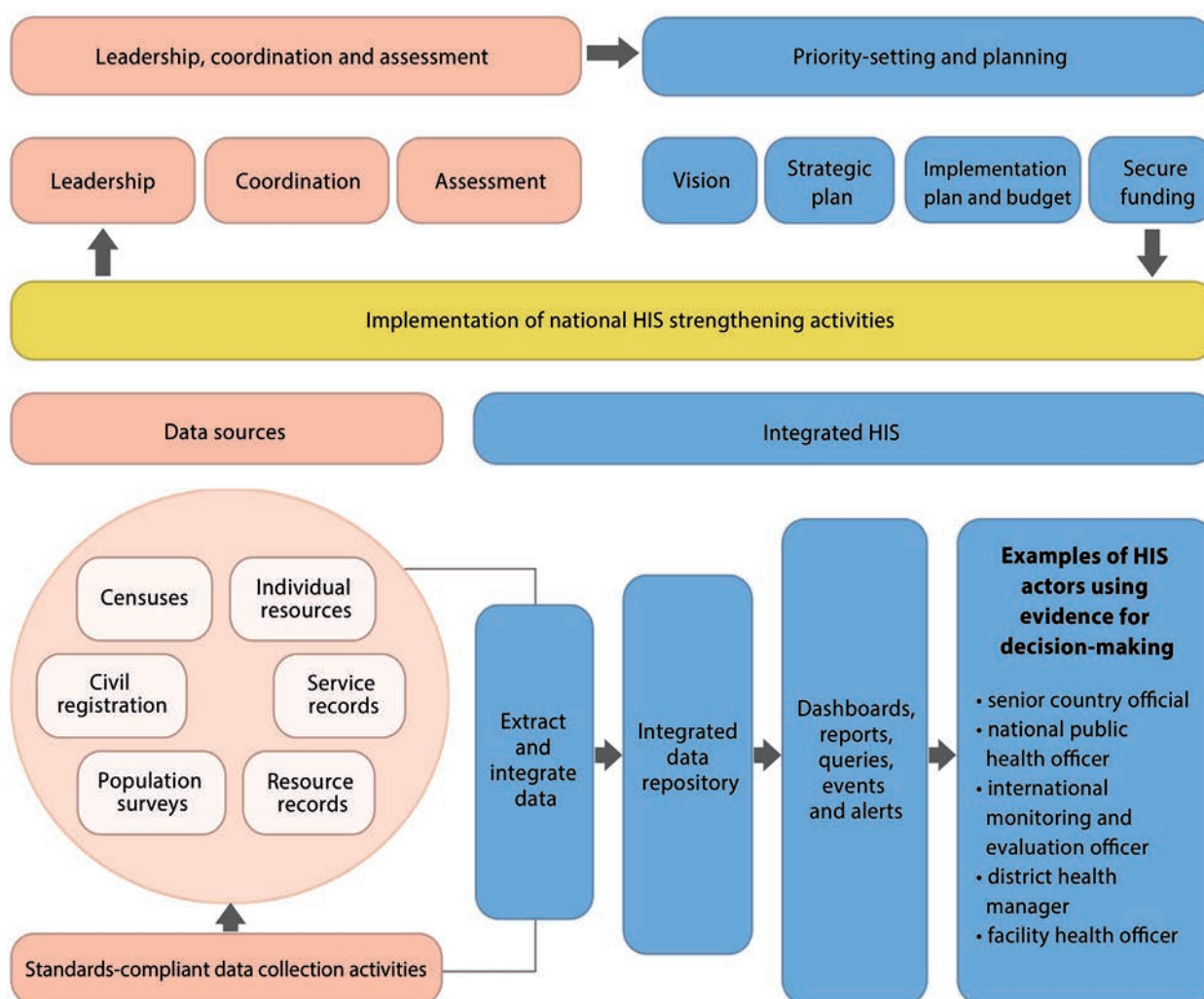
- Phase 1 – leadership, coordination and assessment – involves setting up national working groups and guidance committees and carrying out an assessment of current HIS.
- Phase 2 – priority-setting and planning – uses the results of the assessment to focus the working groups' attention on performance gaps and problems that appear to deserve priority attention and then to generate the strategic ideas needed to strengthen priority HIS subsystems. Implementation of these interventions

is then planned across a medium-term time period, costed and described for review and approval by stakeholders.

- Phase 3 – implementation of HIS strengthening activities – involves time-phased implementation of agreed strategies, with monitoring and re-planning taking place at regular intervals.

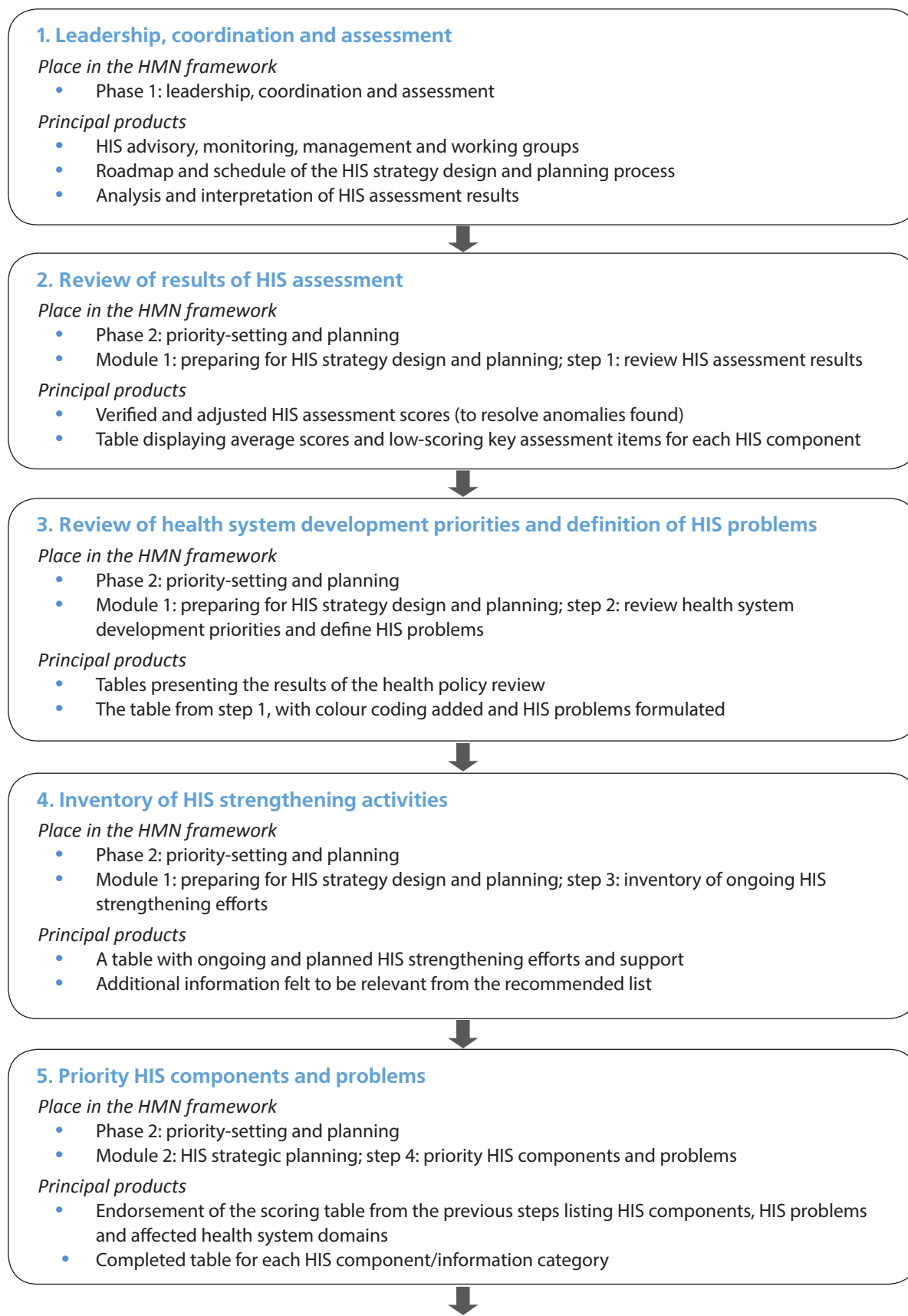
Each national HIS development team should prepare a strategic planning roadmap at the beginning of the process (Fig. 1). It is important to ensure that activity proceeds from the first phase (leadership, coordination and assessment) to setting priorities and planning and then implementing national HIS strengthening activities without undue delay, in order to maintain interest and momentum.

Fig. 1 . Roadmap to applying the HMN framework and standards for country HIS



The flowchart on the next pages (Fig. 2) provides an overview of the different sections of this support tool, their relation to the original HMN framework (as set out in the assessment tool and HIS strategic planning guidance document) and the main outcomes of the framework step(s) addressed. See Annex 1 for a glossary of terminology used in all modules of the HMN framework.

Fig. 2 . Support tool structure flowchart



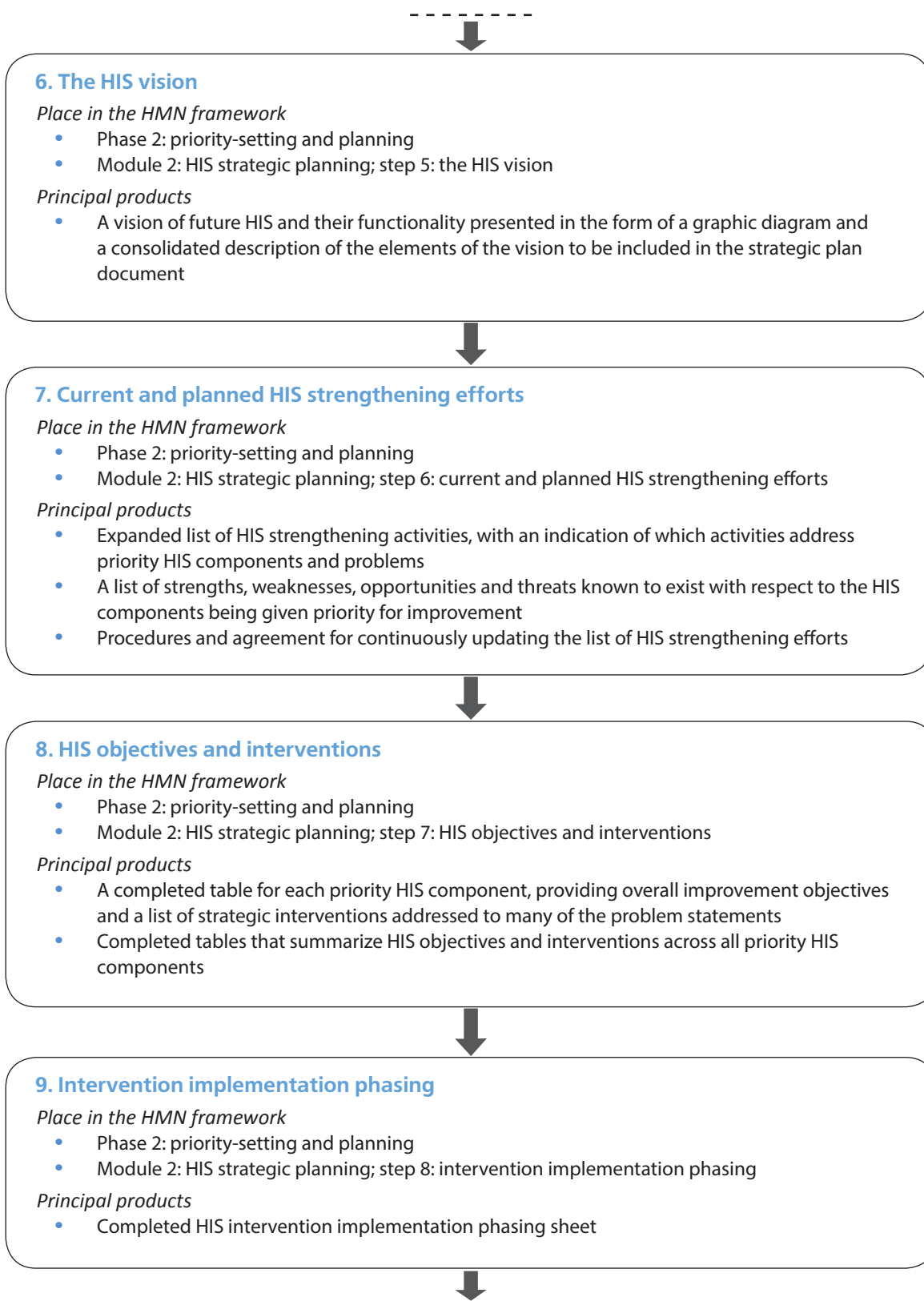


Fig. 2 contd



10. Detailed strategy design and implementation planning

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 3: detailed HIS planning and costing; step 9: detailed strategy design and activity implementation planning

Principal products

- Each proposed component strategy and set of interventions described in detail, including functional and technical specifications of the intended result and products
- Completed detailed activity implementation plans for the strategies of each HIS component and for the entire HIS strategy



11. Strategy costing

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 3: detailed HIS planning and costing; step 10: HIS strategy costing

Principal products

- Completed table of strategy resource requirements for each HIS component and intervention and for the total HIS strategy
- Summary information of costs by HIS component, type of activity and year



12. Finalization, review and approval of strategy; strategy monitoring and periodic evaluation

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 3: detailed HIS planning and costing; step 11: HIS strategy monitoring and evaluation and step 12: the HIS strategic plan document

Principal products

- HIS strategy evaluation framework table
- HIS strategy monitoring framework table
- A completed draft HIS strategy and plan document, including all annexes
- A final document prepared for distribution, discussion and review
- Procedures and responsibilities for managing the process of plan review, approval and funding



13. Translation of evidence into policy

This section outlines the resources available to countries for designing the final aim of national health information strategies: improving the translation of information into policy. They include knowledge resources (through an inventory of multilanguage evidence databases available to users), tools (with a selection of practical instruments for translating evidence into policy) and networks, mechanisms and platforms (with a selection of networks for knowledge translation, including the Evidence-informed Policy Network (EVIPNet) coordinated by the WHO Regional Office for Europe). The section concludes with suggestions for generation and sharing of evidence, as well as the pooling of such information into easily accessible sources.

1. Leadership, coordination and assessment

Place in the HMN framework

- Phase 1: leadership, coordination and assessment

Principal products

- HIS advisory, monitoring, management and working groups
- Roadmap and schedule of the HIS strategy design and planning process
- Analysis and interpretation of HIS assessment results

This section includes detailed guidance on defining the country's goals and desired outcomes and on setting up national working groups, including a national focal point for HIS, and links to relevant international groups. It gives advice on assessing the capacity of current HIS to collect, analyse and present the data required for Health 2020 implementation. It points the user towards existing tools for assessing data quality and provides guidance on assessing governance issues, including system integration and interoperability. For successful application of this support tool, political support for developing or improving a national health information strategy and national efforts to implement policies aligned to Health 2020 need to be in place, alongside commitment to monitor targets and indicators.

Identifying assessors

An initial step in planning an assessment of national HIS is to identify who should be involved. One basic principle of this document is that all major stakeholders should participate in assessing national HIS and planning for system strengthening. Stakeholders include the producers, users and financiers of health information and other social statistics at various national and subnational levels.

Essential HIS data are usually generated either directly from populations or from the operations of health and other institutions. This produces a range of data sources, with numerous stakeholders involved in different ways with each. For example, ministries of health are usually responsible for data derived from health service records and national statistics offices are usually responsible for conducting censuses and household surveys, while responsibility for vital statistics including births and deaths may be shared between the national statistics office, the ministry of home affairs and/or local government and the ministry of health. An illustrative list of appropriate representatives of relevant stakeholders would include the following.

- In the central statistics office, officials and analysts are responsible for important health data collections, such as national population censuses, vital statistics, household surveys and health interview surveys.
- In the ministry of health, senior advisors, members of the ministry cabinet and those within the ministry are responsible for or coordinate:
 - the HIS;
 - acute disease surveillance and response;
 - disease control, immunization and maternal and child/family planning programmes;
 - NCD control programmes;
 - management of human resources, drugs and other logistics and health finances;
 - planning;

- annual monitoring and evaluation and performance reviews;
- facility-based surveys.
- In other ministries and governmental agencies, those within the finance and other ministries or agencies are responsible for:
 - planning, monitoring and evaluation of social programmes;
 - civil registration (typically the ministry of the interior or home affairs or local government);
 - planning commissions;
 - population commissions;
 - commissions for developing social statistics.
- In national institutes of public health, researchers and directors are involved in or responsible for public health monitoring and surveillance and advising the ministry of health.
- In universities and other knowledge institutes, (senior) staff are involved in research related to public health monitoring and surveillance.
- Donors include major bilateral and multilateral health sector donors, global health partnerships such as the Global Fund to Fight AIDS, Tuberculosis and Malaria and the Global Alliance for Vaccines and Immunization (GAVI) and donors who finance specific activities of relevance, such as:
 - the national population census;
 - large-scale national population-based surveys (such as demographic and health surveys, living standards measurement study household surveys and multiple indicator cluster surveys (MICS));
 - the sample vital registration system;
 - the demographic surveillance system;
 - strengthening of the health management information system (HMIS);
 - strengthening of surveillance and integrated disease surveillance and response;
 - the national health account;
 - mapping of health risks and health services;
 - health facility surveys – for example, service provision assessments;
 - evaluation, monitoring and reporting of data from HIS;
 - annual health sector performance reviews;
 - systems for monitoring, reporting and evaluation of major disease control programmes in areas such as HIV/AIDS, tuberculosis, injuries, vaccine-preventable diseases and NCDs.
- United Nations organizations active in the fields of target-setting (such as for Health 2020 and the Millennium Development Goals (MDGs)) and monitoring/data collection include WHO, the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the United Nations Population Fund and the World Bank.
- Representatives of key nongovernmental organizations (NGOs) and civil society – these should include NGOs and other health advocacy groups, private health professional associations and associations of accredited health providers, from both the public and the private sector, and from all relevant levels and sectors of care.

To mobilize and coordinate these and other stakeholders it is very useful to identify a high-level and influential health information ambassador or ambassadors with decision-making powers. This could be someone within the ministry of health or national statistics office or from a major programme area involved in health systems. The ambassador can help ensure that stakeholders fully understand the objectives of the assessment and how it fits into the overall process of national HIS development. In particular, stakeholders should be aware that

assessment will rapidly be followed by a comprehensive strategic planning process to which they will also be asked to contribute. An ambassador should ideally have knowledge about HIS (structure, involved stakeholders, outputs) as well as about strategic and political issues influencing their development.

The working groups

A simple and flexible structure of leadership, management and working groups is necessary to help keep the process on track. Thus, establishing leadership groups should be the first step in the process: they will ultimately define the direction it will take, which may slightly vary from country to country or area to area (see Box 2 for information on the conceptualization of leadership in Health 2020).

Box 2. Leadership in Health 2020

Research shows strong correlations between responsible governance, new forms of leadership and participation. Together with Member States, WHO has a special responsibility to exercise such leadership and to support health ministries in achieving their goals. Adopting a new and innovative style of leadership is a vital part of Health 2020. When looking at leadership, it should be noted that Health 2020 acknowledges and celebrates the wide diversity of health systems and approaches across the WHO European Region: it aims not to make national and local health systems uniform but to make them uniformly better. In adopting Health 2020, all countries agreed on two common objectives; these include the need to strengthen leadership and participatory governance for health.

Health 2020 identifies new systems of collaborative leadership to encourage innovative approaches to social mobilization for equitable, sustainable and accountable health development. Leadership from health ministers and public health agencies remains vitally important to address the disease burden across the Region, but it needs to be strengthened by highlighting the economic, social and political benefits of good health and the adverse effects of ill health and inequalities on every sector – the whole of government and the whole of society. Exercising such a leadership role requires using diplomacy, evidence, argument and persuasion. The health sector also has a partnership role towards other sectors when strengthening health can contribute to achieving their goals.

A cornerstone of health system governance in the 21st century is to make health policies more evidence-informed, intersectional and participatory, and to transform leadership accordingly. Most health policies have been developed using top-down approaches; however, in a whole-of-government environment, horizontal relationships across the whole of government are encouraged. This new collaborative leadership approach aims to bring different partners together and mobilize broad-based political and cultural support for health development. It provides insights into new leadership roles and opportunities, to reach out more effectively to others within and outside government in order to arrive at joint solutions. Health 2020 aims to renew European health policy and to address the human right to health in the context of what is known and what can be achieved in promoting and maintaining health. These benefits should be available for everyone, as far as possible. Achieving them will require new and radically different leadership and governance for health. Applying evidence-based strategies that work, using key stakeholders and civil society, enhances the orientation of new national health plans and strategies towards citizens and the users of health services and articulates social values.

Source: Health 2020: a European policy framework and strategy for the 21st century. Copenhagen: WHO Regional Office for Europe; 2012 (<http://www.euro.who.int/en/publications/abstracts/health-2020-a-european-policy-framework-and-strategy-for-the-21st-century>, accessed 7 November 2014).

The following working groups should be established.

- A steering committee will sponsor and monitor the HIS strategy design and implementation process. It can comprise three or four senior policy-makers, one from each of the ministries contributing to the process and the subsequent implementation of system improvements. These normally include the ministries of health, interior, planning and finance, as well as the census bureau and national institute of statistics or similar bodies. The continual presence, oversight and direction of these national senior managers are critical prerequisites to the success of the process.
- The HIS core team usually provides the technical management of the process. A small core team consists of operational managers and senior staff from the principle departments that will implement system improvements. In most cases this includes:
 - the health information department of the ministry of health
 - the national public health institute
 - the census planning and analysis unit
 - the department of civil registration in the ministry of interior
 - other departments and institutes heavily engaged in social and health measurement.

The size of the core team is usually no more than six to eight staff; these must devote considerable amounts of time prior to and during the periods of intense group work. This team is the primary source of management and facilitation of the group processes described in this guidance document. The steps of this process define which tasks should fall to the core team and which should be carried out by a larger group of stakeholders.

- The HIS stakeholder working group (SWG) should contain appropriately qualified staff from the offices and programmes in a position both to contribute to the design of information system improvements and eventually to take responsibility for implementing strategies and activities that fall within their functional areas of work. Commonly the SWG has 40 to 60 members, including the core team, with advisors drawn from offices such as the following:
 - ministry of health: planning, budgeting, finance and human resources departments;
 - priority programmes such as disease prevention and control, mother and child health, hospital services and primary health care;
 - ministry of planning and finance;
 - ministry of interior: department of civil registration;
 - national institute of statistics: departments of survey management, data analysis, storage and retrieval;
 - NGOs supporting health and development, planning, project implementation, monitoring and evaluation;
 - external technical donor organizations and agencies active in health programme planning, funding, implementation, monitoring and evaluation.

During certain strategic planning and review activities, it may be useful for appropriate representatives of service level managers and staff and of service client groups to join the SWG.

The steering committee, core team and SWG together form the national HIS development team.

Set-up of the HIS assessment exercise

It is recommended that the assessment should be conducted during large dedicated national workshops and/or smaller meetings of several groups where all relevant stakeholders are present. A combination of these two approaches is likely to be most effective and time-efficient in obtaining inputs from all key stakeholders, thus informing and building consensus among them. Some countries have used individual interviews with key stakeholders and groups, but this does not allow for the stimulation of open discussions with all relevant stakeholders in an open forum.

Many participants may not be familiar with certain aspects of the national HIS, and participating in broad discussions of all 197 items included in the HMN assessment tool⁴ would be highly time-consuming. Hence, it is usually best if participants are divided into small groups that can work either sequentially or simultaneously (for example, at a national workshop) to reach consensus on a subset of items. Whenever assessment is conducted by only a subset of meeting participants, however, efforts must be made to ensure that feedback and discussion of the findings takes place among all key stakeholders to meet the objective of informing and building consensus.

It is not advisable to administer the assessment as a questionnaire to be completed by separate individuals: it is important that groups of informants discuss the assessment items together. Even if the individuals in the group end up scoring the items differently, they will learn from the group discussion and the results will better reflect a consensus about the meaning of each item.

Certain key individuals (such as senior policy-makers and planners within the ministry of health, the central statistics office, the ministry of finance and the vital registration authorities) may not be able to attend the entire assessment workshop. If this is the case, individual appointments should be scheduled by the assessment organizers in order to obtain these key inputs. It is also essential that one or more facilitators should be available to support the workshops or meetings where the assessment tool is being used. Facilitators should be thoroughly familiar with the complete assessment tool and with the HMN framework on which it is based. In addition to helping to lead the plenary sessions, they should circulate among the smaller groups, helping to clarify the meaning of particular items and answering questions. Facilitators can also explain how the composite scores for each aspect of the national HIS can be compiled and the findings summarized in the assessment report.

A large number of items need to be assessed by members of the national HIS unit or section within the ministry of health. It might thus support the assessment process if these key participants met in advance of the workshops and other meetings. Groups that meet subsequently may be provided with a record of the scores generated by national HIS staff. These same individuals could then play a significant role in organizing and facilitating the assessment workshops, meetings and interviews with key personnel outlined above.

The major advantage of a self-assessment approach, however, is that it engages all partners in a shared learning experience. Facilitators may help to speed up the assessment and make the findings more comparable but it is important that they do not interfere with the process of self-discovery among country stakeholders. Self-assessment can often lead to a genuine desire to significantly improve national HIS.

Several agencies and donors normally provide technical cooperation to various aspects of HIS and data management in a country at any point of time. Several – such as WHO, UNICEF or UNDP, as well as other major donors and bilateral projects – may have national experts, resident advisors and consultants who

⁴ Assessing the national health information system: an assessment tool, version 4.00. Geneva: World Health Organization; 2008 (<http://www.who.int/healthmetrics/tools/en/>, accessed 10 November 2014).

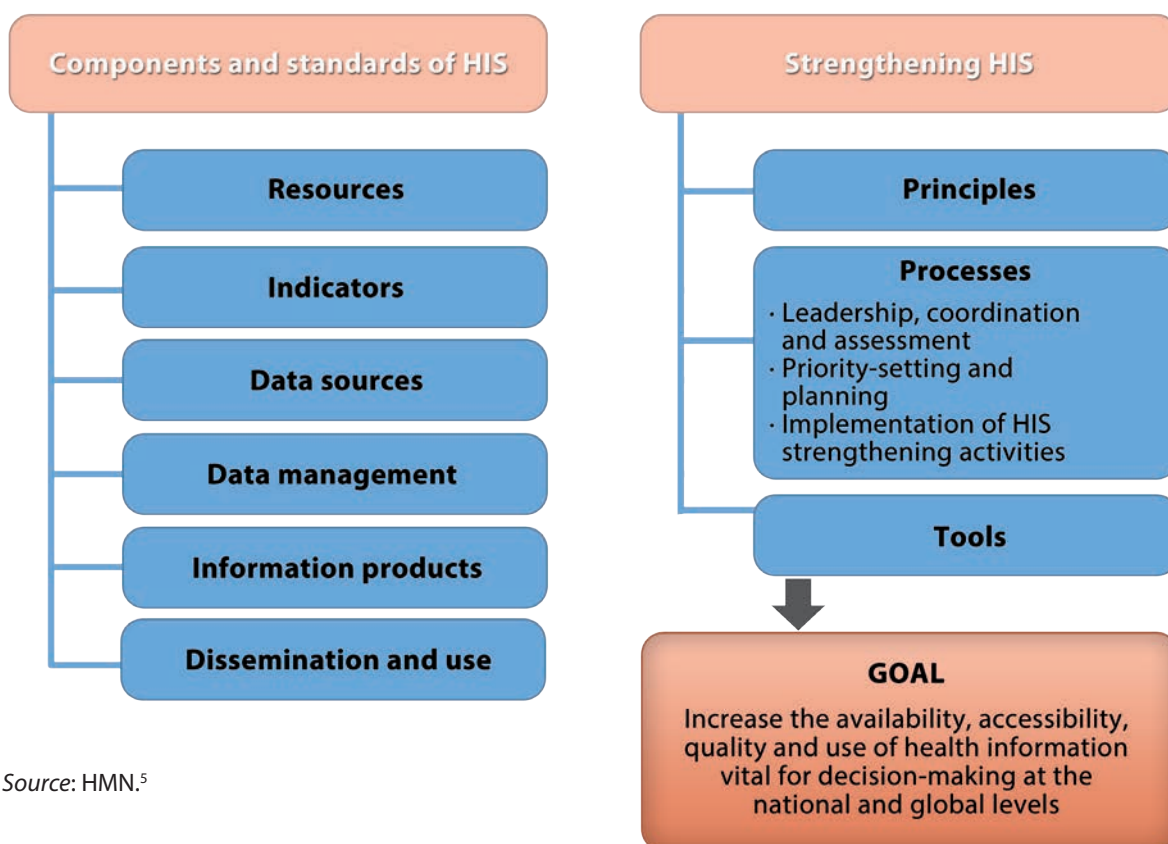
could be interested and available to support this process. The source of qualified external facilitation needs to be confirmed well in advance, if the national authorities feel it is needed. In addition, it is appropriate for experienced facilitators to provide some orientation and training in the use of this guidance document and its formats to the core team, who are generally the members of the core team.

Overall management of the process should be carried out by designated national officers to ensure that the priorities, strategies and implementation approaches are determined and owned by the national officers and groups. Facilitators must maintain a low profile and defer all analysis and decision-making to national members of the working groups, but this should not prevent them from sharing ideas and helping the groups adhere to their own criteria and principles. The steps of the various phases of the HIS assessment and design process are designed to help ensure that all analysis and idea generation is carried out by national officers, using procedures and formats that have proved useful elsewhere.

The HIS assessment tool: components

The six main categories of questions and items presented in the HIS assessment tool derive directly from the six main components defined in the conceptual HMN framework (see Fig. 3): resources; indicators; data sources; data management; information products; and dissemination and use. These components become the initial categories for summarizing the results of the assessment by use of the average scores achieved by each.

Fig. 3 . The HMN framework



Source: HMN.⁵

⁵ Assessing the national health information system: an assessment tool, version 4.00. Geneva: World Health Organization; 2008 (<http://www.who.int/healthmetrics/tools/en/>, accessed 10 November 2014).

Scoring the items in the assessment tool

The assessment score sheet is available in Excel via the HMN website.⁶ Assessment of certain items may also be supported by external findings, such as statistics used in global databases. For example, vital statistics practices may in part be assessed on the basis of statistics compiled by the United Nations Statistics Division or available in the WHO global mortality database.

For each item in the assessment tool a range of possible scenarios is provided, allowing for objective and quantitative rating. The highest score (3) is given for a scenario considered highly adequate compared to the “gold standard” described in the assessment tool. The lowest score (0) is given when the situation is considered not at all adequate in terms of meeting the gold standard. The total score for each category is aggregated and compared against the maximum possible score to yield a percentage rating.

Each of the questions and items can be rated by multiple respondents and the replies aggregated to obtain an overall score. The more varied the (informed) respondents involved, the lower the risk of bias in the end results. In some cases, a particular item may be judged inapplicable. If so, it should be omitted from the scoring process and the reasons for doing so recorded.

Table 1 shows the assessment categories and total number of questions or items in each. Annex 2 demonstrates how the assessment scores should be attributed for any given issue, using HIS resources (coordination, planning and policies) as an example.

Table 1 . Assessment categories with total number of questions/items

Category	Number of questions/items
Resources:	25
policy and planning	7
HIS institutions, human resources and financing	13
HIS infrastructure	5
Indicators	5
Data sources:	83
census	10
vital statistics	13
population-based surveys	11
health and diseases record (including surveillance)	13
health service records	11
resource records:	25
infrastructure and health services	6
human resources	4
financing and expenditure for health services	8
equipment, supplies and commodities	7
Data management	5
Information products	69
Dissemination and use	10
Total	197

⁶ HMN toolbox [website]. Geneva: World Health Organization; 2014 (<http://www.who.int/healthmetrics/tools/en/>, accessed 10 November 2014).

2. Review of results of HIS assessment

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 1: preparing for HIS strategy design and planning; step 1: review HIS assessment results

Principal products

- Verified and adjusted HIS assessment scores (to resolve anomalies found)
- Table displaying average scores and low-scoring key assessment items for each HIS component

This section explains how the results of the assessment can be used to focus the attention of working groups on the gaps in performance and other issues and risks that should be priorities. It also provides guidance for the generation of strategic ideas to strengthen HIS.

After the HIS assessment has been completed and the results tallied, it is necessary to review and verify the results and determine the average scores for each category of the assessment. Low-scoring questions and items from which HIS problems are to be defined should be identified. At the end of this step, the core team will have produced a table displaying the average assessment scores for each component. These averages, along with all low-scoring key assessment items, are listed for each component in a table (see Table 2 for an example of how this should be presented).

The following list of materials is required to complete this step:

- details of health system domains (see Annex 3);
- a list of HIS components (see Fig. 3);
- a list of key assessment items (see Annex 4);
- the HIS assessment spreadsheet tool (Version 4.0), with the resulting data and scores tabulated for each question and assessment category.

Tasks

- Discuss the definition and content of HIS components and information categories (as listed in the left column of Table 2) and the definition of the functions of the national health system, listed as domains across the column headings of Table 2.
- Adjust the titles of health system domains in the Table 2 column headings: this is an opportunity for the preparation team to better reflect the structure of the national health system.
- Discuss the purpose and process of setting priorities across HIS components for subsequent problem definition and intervention design for performance improvement. This discussion should include an explanation of the spreadsheet tool and how it averages the scores resulting from the assessment for each component.
- Validate the assessment data. The importance of valid question scores should be stressed. If assessment data validation was not carried out during the assessment analysis and report preparation in phase 1, it should be done now. This requires the preparation team to review the individual scores and totals for all questions and items, and to look for and correct anomalies such as missing values, scoring by staff with no knowledge of the subject and obvious data errors. The spreadsheet scoring tool provided by HMN for calculating average scores may have to be adjusted at this point to correspond to the version of the HIS assessment questionnaire used in the country. After these adjustments are made the assessment data can be loaded into the tool and the assessment tabulation run.

- Complete Table 2 by copying the identifier of each low-scoring key assessment item along with the HIS component average scores (see Annex 5 for an example). Both average scores and low-scoring key assessment item are identified from the HIS assessment spreadsheet tool.

Table 2 . Example summary table for HIS assessment outcomes

HIS component (information category)	Health system domains (functions)													Rationale (quantification or explanation of the problem)	Problem statement (component and key assessment item)	
	Component average score	Low-scoring key assessment item	Key item text	Stewardship and management	Services				Commodities supply chain	Resources						
					Facility-based	Community- based	Diagnostic	Environmental		Human	Financial	Knowledge and information	Infrastructure			
Resources																
Coordination, planning and policies																
Financial and human resources																
Infrastructure																
Indicators																
Data sources																
Census																
Civil registration																
Population surveys																
Health and disease records (individual)																
Service records																
Resource (administration) records																
Data management																
Information products																
Mortality																
Morbidity																
Health system																
Risk factors																

3. Review of health system development priorities and definition of HIS problems

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 1: preparing for HIS strategy design and planning; step 2: review health system development priorities and define HIS problems

Principal products

- Tables presenting the results of the health policy review
- The table from step 1, with colour coding added and HIS problems formulated

On the basis of the previous step, this section guides the setting of objectives for performance improvement (including strategic targets and indicators) for each component of the system. It also assists in generating ideas for strategic interventions to minimize problems and improve the performance of the components.

A review of health system development priorities and definition of HIS problems provides the national HIS development team with an approach to establish the relative priority of the various HIS components. This is undertaken for those components receiving HIS development attention over the period of the strategic plan, and is based on the scores received from the HIS assessment. Moreover, this step is designed to enable such prioritization to be conducted in relation to the national health system and its development objectives and priorities. The desired result is a list of priority HIS problems that are felt to require most attention within the HIS strategy design and planning process in order to improve performance and information use.

At the end of this step the preparation team will have assembled a set of information depicting the health policy framework of the country, displaying specific objectives and priorities of the current health development plan. In addition, a set of HIS problem statements will have been formulated in response to the low-scoring HIS components and key assessment items, defined in relation to the health system domains to which they most strongly relate.

The following list of materials is required to complete this step:

- example tables to present current health priorities (health problems and related services) and related indicators (see Annex 6 for an example – Annex 7 contains an overview of indicator sets currently in use by WHO, the European Commission and OECD, which can be used as examples of the kind of indicators one would expect to use at the national (or subnational) level, Box 3 contains information on the Health 2020 monitoring framework and Table 3 gives an overview of the Health 2020 indicators within this framework);
- a table including average scores for each HIS component and a list of low-scoring key assessment items;
- a checklist of documents for use during the HIS strategic planning and detailed planning and costing processes (modules 2 and 3 of phase 2 in the HMN framework) (see Annex 8).

Tasks

- Assemble all current health system and development policy documents related to the following aspects of health policy (some may already be available from activities in phase 1):
 - national health vision, mission, goals, objectives, development strategies and priority population groups;
 - priority health problems (risk factors, diseases, conditions and outcomes);

- essential health services for preventing and managing priority health problems;
- current indicators of priority health problems, essential services and resources.
- Review the policy information and prepare as a minimum the following:
 - extracted health vision, mission and goal statements;
 - a table of priority health problems and related essential services (see Annex 6);
 - a table of current indicators for monitoring priority problems and services (see Annex 7 for examples of the kind of indicators that could be used).
- Colour code the scoring table from step 1 to highlight low-scoring components and the health system domains most affected by poor HIS component performance. Use yellow for domains moderately affected and red for domains severely affected (see Annex 9 for an example).
- Define HIS problems from each low-scoring HIS component and key assessment item in the “Problem statement” column of the summary table (see Table 2). Priority HIS problems are identified based on low scores (1.80 and lower). In addition, the team needs to consider the health system priorities and the health system domains most affected by the HIS deficiency when identifying priority HIS problems.
- Develop a statement for each HIS problem. The preparation team may formulate problem statements that cover several similar or related low-scoring questions or items. Because of the way some multipart questions and items are formulated, the team may also wish to break a single question into more than one problem statement. Results from other relevant assessments of health services and data may also be considered to define the HIS problems more fully.

Box 3. The Health 2020 monitoring framework

The main aim of this support tool is to help Member States with implementation of the Health 2020 monitoring framework, which was created as follows. In 2012 the WHO Regional Office for Europe established two expert groups (following nominations from Member States) to advise on the development of indicators for the six Health 2020 targets adopted at the sixty-second session of the WHO Regional Committee for Europe. The first expert group advised on measurement of and target-setting for well-being, the second on indicators for the remainder of the Health 2020 targets. These groups met several times, including at a joint meeting in February 2013, and proposed a core set and an additional set of indicators.

The indicators were subject to a web-based consultation with Member States following the third session of the twentieth Standing Committee of the Regional Committee (SCRC) in March 2013. Inputs were received from 30 Member States. A preliminary analysis was presented in May 2013 to the fourth session of the SCRC, which recommended submission to the sixty-third session of the WHO Regional Committee for Europe. In June and July 2013 the list of indicators underwent detailed revision based on the comments received during the country consultation and the SCRC.

In September 2013 the 53 Member States in the WHO European Region approved a list of 20 core and 17 additional indicators to measure progress with the six targets within the three Health 2020 priority areas (see Table 3) and requested WHO to propose core and additional indicators for “objective well-being” to complete the indicators set (note that indicators can be linked to several areas/targets). This was finalized in April 2014 through the expert groups on well-being and Health 2020 indicators.

Source: Targets and indicators for Health 2020, version 2. Copenhagen: WHO Regional Office for Europe; 2014 (<http://www.euro.who.int/en/health-topics/health-policy/health-2020-the-european-policy-for-health-and-well-being/publications/2014/targets-and-indicators-for-health-2020.-version-2>, accessed 13 November 2014).

Table 3 . Health 2020 core indicators

Priority area	Core indicators
1. Burden of disease and risk factors	<ul style="list-style-type: none"> • Age-standardized overall premature mortality rate (from 30 to under 70 years) for four major NCDs (cardiovascular diseases (International Classification of Diseases, 10th revision (ICD-10) codes I00–I99), cancer (ICD-10 codes C00–C97), diabetes mellitus (ICD-10 codes E10–E14) and chronic respiratory diseases (ICD-10 codes J40–J47) • Age-standardized prevalence of current tobacco use among people aged 18+ years • Total per capita alcohol consumption among people aged 15+ years within a year • Age-standardized prevalence of overweight and obesity in people aged 18+ years • Percentage of children vaccinated against measles, poliomyelitis and rubella • Age-standardized death rate, external causes of injury and poisoning, all ages, per 100 000 population
2. Healthy people, well-being and determinants	<ul style="list-style-type: none"> • Life expectancy at birth (years) • Infant deaths per 1000 live births • Percentage of children of official primary school age not enrolled • Unemployment rate • National and/or subnational policy addressing the reduction of health inequities established and documented • GINI coefficient of income distribution • Life satisfaction • Social support availability • Percentage of population with improved sanitation facilities
3. Processes, governance and health systems	<ul style="list-style-type: none"> • Private households' out-of-pocket payments on health as percentage of total health expenditure • Percentage of children vaccinated against measles, poliomyelitis and rubella • Total health expenditure as percentage of gross domestic product • Establishment of process for target-setting documented • Evidence documenting: (a) establishment of national policies aligned with Health 2020; (b) implementation plan; (c) accountability mechanism

4. Inventory of HIS strengthening activities

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 1: preparing for HIS strategy design and planning; step 3: inventory of ongoing HIS strengthening efforts

Principal products

- A table with ongoing and planned HIS strengthening efforts and support
- Additional information felt to be relevant from the recommended list

This section supports the assembly and presentation of an inventory of ongoing and planned HIS strengthening projects and activities (see Annex 10). These activities, with the interventions for improvement identified in Section 2 on reviewing the results of the HIS assessment, will form part of a phased implementation plan.

The following list of materials is required to complete this step:

- examples of HIS strengthening activities (see Annex 10);
- a table listing current HIS strengthening efforts (a blank version of Table 4);
- example of a listing of current HIS strengthening efforts (see Table 4).

Tasks

- Develop an inventory of ongoing and planned HIS strengthening efforts (see Table 4 for an example of a partly completed worksheet). Ensure that a distinction is made between HIS strengthening (or development) activities and routine data management and use.
- Gather additional information pertaining to HIS. This information becomes useful and relevant when details of interventions are being planned. Additional information to be gathered includes:
 - a list of active databases;
 - a list of routine and ad hoc reports;
 - a list of existing basic and in-service training related to various aspects of recording, reporting and data use.

This table should be presented and discussed when carrying over most ongoing HIS strengthening efforts into the HIS strategic plan in step 6.

Table 4. Example of a partly completed worksheet of ongoing and planned HIS strengthening efforts

Priority HIS component/information category supported	Title and subject of strengthening activity	Office responsible (ministry, department, agency etc.)	Important products	Implementation period	Financial/technical support	External support source (ministry, NGO, United Nations agency, World Bank, etc.)
	Develop HIS strategic plan		HIS strategic plan	2009–2013	Short-term technical assistance	
	Improve human resources database		Manual and database	2009–2010	Technical assistance	
	Revise community-based HMIS		Forms, manual and database	2009–2011	Funds and technical assistance	
	Revise hospital HMIS		Forms, manual and database	2009–2011	Funds and technical assistance	
	Standardize patient record system at hospitals		Policy, required information products and database	2009–2011		
	Revise balanced scorecard		Manual and database	2009–2013	Funds and technical assistance	
	Develop drug management information system		Manual and database	2009–2011	Funds and technical assistance	
	Design and implement measurement		Project design and evaluation document	2009–2013	12 million	
	Support development of programme budgeting initiative		Programme objectives, indicators and budgeting document	2008–2009	Funds and technical assistance	
	Support development of provincial planning initiative		Guidelines, training manual and pilot experience document	2008–2009	Funds and technical assistance	
	Support development of district health officers		District health officers	2008–2012	Funds	
	Revise national monitoring checklist and database		Guidelines and implementation plan	2009–2012	US\$ 27 200	
	Design and implement integrated behavioural and biological surveillance for HIV		Guidelines, manual and database	2008–2012	Funds and technical assistance	
	Design and implement community demographic surveillance system		Guidelines, manual and database	2009–2011	Funds	
	Support further expansion of pilot vital registration system		Guidelines, manual and database	2008–2010	Funds	
	Afghan financial management system		Database	2008–2010	Funds and technical assistance	
	Global Fund Round 8 HIS proposal submitted as part of the malaria proposal; includes: 1. strengthen routine data and trend analysis 2. add HIV, tuberculosis, malaria indicators to HMIS 3. establish comprehensive public health survey and/or programme 4. confirm central and provincial responsibilities, procedures for surveillance and outbreak response 5. provincial data use processes for annual planning and service performance improvement		1. procedures, formats and training 2. formats, procedures and guidelines 3. programme plan and donor support 4. procedures, guidelines, field epidemiology training programme 5. procedures, guidelines	Mid-2009–mid-2013	All, some or none of this could be approved by the Global Fund; results to be known by the end of October 2008	

5. Priority HIS components and problems

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 2: HIS strategic planning; step 4: priority HIS components and problems

Principal products

- Endorsement of the scoring table from the previous steps listing HIS components, HIS problems and affected health system domains
- Completed table for each HIS component/information category

The purpose of this step is to ensure a smooth transition from module 1 on preparation for HIS strategy design and planning to module 2 on HIS strategic planning. It should develop a prioritized list of HIS problems and, through discussion, ensure that widespread agreement is reached.

The HIS strategy is designed to address needs and gaps identified through the preceding HIS assessment and its analysis. On the basis of the assessment results and other criteria and data, the HIS core team has identified priority HIS components that appear to deserve most attention for improvement. The constituent problems within each HIS component have been defined (from low-scoring key assessment items). The SWG is asked to review these findings; confirm or revise the selection of priority HIS components and their constituent problems produced in step 2; and contribute to the further definition of problems to be addressed through the HIS strategy. Important issues and indicators of performance that are felt missing may be added at this time.

The following list of materials is required to complete this step:

- the completed summary table with the results of the HIS assessment (average scores of each HIS component) in relation to HIS domains also produced in phase 1;
- all other relevant materials produced in phase 1.

Tasks

- The core team should debrief the SWG about the HIS assessment that took place in phase 1 and provide more detailed information about:
 - how HIS components are defined and function in support of the domains of the national health system;
 - the HIS assessment results and how priority HIS components and information categories were identified, along with additional low-scoring key assessment items;
 - the definition of HIS problems and which health system domains they affect.
- Develop a prioritized list of HIS problems with indicators and underlying constraints.
 - ★ **Tip 1.** To conduct this task effectively, divide the SWG into subgroups. (The same groups will also be used during the planning of HIS objectives and interventions in step 7.)
 - ★ **Tip 2.** The Health 2020 policy priorities are listed in Box 4.
- Collect and distribute your completed summary table with the outcomes of the HIS assessment provided in step 2.
- Review your stated HIS problems as defined in step 2.

- Confirm which HIS components and problems are felt to deserve most improvement attention and record them in the worksheet as follows (see Table 5 for an example of a partly completed worksheet):
 - fill in the top portion the problem HIS component and/or information category;
 - identify which problems have measurable indicators and place them in the appropriate rows along with the baseline value of the indicator;
 - list these problems and underlying causes as well as other important problems (without indicators) in the lower portion of the table.
- Repeat this operation for each of the problem HIS components and/or information categories.
- Present and discuss the finalized problem statements in plenary. Review any recommendations to revise, add or delete any HIS component, information category or problem statement from the priority list.

Box 4. Policy priorities in Health 2020

The Health 2020 policy framework proposes four common areas for policy action, based on the categories for priority-setting and programmes in WHO agreed by Member States at the global level and aligned to address the special requirements and experiences of the European Region:

- investing in health through a life-course approach and empowering people;
- tackling Europe's major disease burdens of NCDs and communicable diseases;
- strengthening people-centred health systems, public health capacity and emergency preparedness surveillance and response;
- creating resilient communities and supportive environments.

These also build on relevant WHO strategies and action plans at the regional and global levels. The four priority areas are not discrete areas of action but are frequently interdependent and mutually supportive.

Table 5. Example of a partly completed worksheet of HIS component problems and interventions

HIS component or information category: data sources/service records			
HIS component problem indicators		Performance improvement objective	
Indicator	Baseline value	Target	Year of achievement
Use of service records and reports by public and private facilities	Only public sector service records and reports		
Percentage of health facilities (sample) producing data of acceptable quality	40%		
Percentage of health facilities (sample) with documented use of information for management of the health services	25%		
Priority problems and constraints affecting the component		Proposed interventions	
1. Limited quality of service records data produced by health facilities due to: <ul style="list-style-type: none"> • lack of standard definitions and procedures for data collection • staff not trained in using forms • no data quality assurance system 			
2. Limited use of data from service records: <ul style="list-style-type: none"> • no incentives for managers and care providers to use information • senior management does not promote use of information • limited problem-solving skills among care providers 			
3. Private sector facilities do not report services provided: <ul style="list-style-type: none"> • disincentives to report data (linking with tax records) • no standardized data collection forms • private providers lack skills in data collection, analysis and use of information 			

6. The HIS vision

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 2: HIS strategic planning; step 5: the HIS vision

Principal products

- A vision of future HIS and their functionality presented in the form of a graphic diagram and a consolidated description of the elements of the vision to be included in the strategic plan document

Before proceeding, establish an HIS vision that conveys the necessary improved functionality and desirable characteristics of the future HIS and its various components. It should also convey its support of the national health development strategy and plan in response to the priority HIS component problems already defined.

The SWG must combine its members' views about the desired functionality and use of HIS at the end of the strategic plan period (10–15 years). This vision will form part of the HIS strategy document.

The following list of materials is required to complete this step:

- details of the values and principles of the ministry of health;
- a note on constructing a vision of future HIS (see Annex 11);
- an example of vision graphics and a set of elements (see Annex 12).

Tasks

- Create, through group discussion, an initial set of vision topics.
- Review the ministry of health's health system vision and principles and any earlier HIS vision statements.
- Review the problems related to the HIS components in subgroups.
- List the key elements of the vision next to the diagram.
- Finalize the subgroup vision diagram and key elements. The core team then compiles a consolidated graphic and narrative description of the vision for use within the strategic plan document.

7. Current and planned HIS strengthening efforts

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 2: HIS strategic planning; step 6: current and planned HIS strengthening efforts

Principal products

- Expanded list of HIS strengthening activities, with an indication of which activities address priority HIS components and problems
- A list of strengths, weaknesses, opportunities and threats known to exist with respect to the HIS components being given priority for improvement
- Procedures and agreement for continuously updating the list of HIS strengthening efforts

The purpose of step 6 is to review any ongoing and planned efforts to strengthen various aspects of HIS so that their likely effect on the priority HIS components and constituent problems can be anticipated and planned for. At the end of this session, the SWG will have reviewed the inventory of ongoing and planned HIS strengthening activities produced by the core team during step 3 and identified further activities that should be added to the list. In addition, the SWG will have undertaken an analysis of strengths, weaknesses, opportunities and threats to better understand the political and donor interests in strengthening HIS when identifying potential sources of support. This step will be used to identify which of the ongoing activities appear to address priority HIS components and problems, and will earmark them as such for inclusion in the HIS strategic plan. Finally, agreement will have been reached on a mechanism for continually updating this list of ongoing HIS strengthening efforts as the HIS strategy proceeds into implementation.

The following list of materials is required to complete this step:

- the inventory of ongoing and planned HIS strengthening activities from step 3;
- examples of HIS strengthening activities (see Annex 10);
- the worksheet of ongoing and planned HIS strengthening efforts (see Table 4);
- an example list of strengths, weaknesses, opportunities and threats (see Annex 13).

Tasks

- The core team briefs the SWG about the need for and sources of information about ongoing HIS strengthening efforts. The core team must emphasize the distinction between “routine” and “strengthening” HIS activities.
- The SWG updates the inventory of ongoing and planned HIS strengthening efforts (referring to the completed worksheet based on Table 4). To complete the task, the SWG and core team must ask the responsible national programme managers and associated donor representatives to describe major ongoing HIS strengthening projects and activities. During this part of the briefing, the SWG identifies any activities that appear directly to support the priority HIS components and problems confirmed in step 4 and notes them on the inventory under the “Priority HIS component/information category supported” column.
- The SWG identifies and lists any known additional strengthening efforts that were not listed on the worksheet. (Note: do not include items such as routine maintenance and updating of existing computer applications.)

- It is important to show the types and amounts of donor support currently available or planned for each activity – for example, development of new/improved:
 - records, registers, reports and data flow procedures;
 - computer applications for data entry, database management and report generation.
- The SWG conducts a modest analysis of strengths, weaknesses, opportunities and threats to note and record known sources of interest and support for HIS strengthening, such as government departments, national programmes, politicians, policy-makers, collaborating agencies and organizations supporting the health and related sectors. In addition, risks and threats to HIS component strengthening should also be noted (see Annex 13 for an example).
- The SWG discusses and agrees on a procedure for continually updating the HIS strengthening inventory. It is suggested that this procedure should be managed by the core team under the supervision of the steering committee. Managers of HIS improvement interventions could be asked to send in regular progress reports so that the core team can update the HIS strengthening inventory.

8. HIS objectives and interventions

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 2: HIS strategic planning; step 7: HIS objectives and interventions

Principal products

- A completed table for each priority HIS component, providing overall improvement objectives and a list of strategic interventions addressed to many of the problem statements
- Completed tables that summarize HIS objectives and interventions across all priority HIS components

At this point in the strategic planning process the SWG begins to study and respond to the list of HIS problems and their underlying causes. All the problems listed from steps 2 and 4 are discussed again for the purpose of formulating performance improvement objectives and to identify possible strategic interventions for problem reduction. A type of causal problem analysis can be used to assess the situation more fully and generate ideas for interventions. Interventions for the HIS components are also guided by the HIS vision.

At the end of this step, the SWG and its subgroups will have formulated one or two measurable HIS performance improvement objectives and produced a list of strategic interventions that address many of the problems related to each priority HIS component or information category. The SWG will have placed these objectives and interventions within tables for subsequent reference and presentation in the ultimate HIS strategic plan document.

The following list of materials is required to complete this step:

- the results of the problem definitions for each HIS component and information category as presented in the worksheets in steps 1 and 4 (see Tables 2 and 5);
- the worksheet from step 4 (see Table 5) to fill in the interventions, a worksheet outlining objectives and indicators (see Table 6 for an example of a completed worksheet) and a blank version of Table 7;
- strategy design principles and criteria derived from the HMN framework and principles and adjusted by the core team (see Annex 14);
- consolidated HIS standard and possible strategic interventions (see Annex 15).

Discussion needs to include the nature and array of ideas for possible interventions to address the HIS problems defined; the strategy design principles and criteria (see Annex 14); and potential HIS strategic interventions (see Annex 15).

From Annexes 14 and 15 the SWG will generate a list of general types of strategic intervention that adhere to the design principles and criteria. One area that should be considered for improvement in particular is data linkage: linking different databases at the subject level is essential for production of high-quality informative health statistics. In practice, however, different barriers often exist (see Box 5 for more information on this issue).

Box 5. Data linkage: technical and legal issues

For the production of sound, informative health statistics, linkage of different databases at the subject level is sometimes required. “Not being able to link different data sources poses a threat to data quality, as double counting of events cannot be prevented, and as people who have died or emigrated cannot be identified. Moreover, enabling linkage will help governments in developing efficient and adequate policies through a better identification of risk groups” (1).

Both technical and legal issues may complicate such data linkages. Technical issues may relate to the use of personal identification numbers, encryption of data and secure facilities for access to personal data for monitoring and research purposes. OECD has gathered country experiences related to these issues (2). The Nordic countries are well known for their elaborate, long-term health and welfare registers and their ability to interlink all these different registers – see, for example, the Swedish Initiative for Research on Microdata in the Social and Medical Sciences (SIMSAM) initiative in Sweden (3). In 2007 UNECE published a best practice report on register-based statistics in the Nordic countries to give strategic and planning officers in national statistical institutes an understanding of the ins and outs of register-based statistics, including the necessary technical and administrative capacity.

Data protection legislation should reflect the delicate balance between the right of the individual to privacy – especially in relation to sensitive information like health data – and the needs of both society and individuals for the application of evidence-informed policies and interventions and transparent and efficient use of public resources. Such legislation differs across European countries: in some the balance tips more towards protecting the right of privacy; in others it tips more towards creating opportunities to use personal health data for monitoring and research purposes (provided the necessary safeguards are in place). OECD has studied and reported cross-country variation in the use of personal health in relation to national data protection legislation (4).

For European Union (EU) Member States the legal data protection framework is set at the EU level. Current EU data protection legislation is under revision and will be replaced by a new general regulation. In 2012 the European Commission published a first proposal and in October 2013 the European Parliament passed several amendments. These could have serious negative effects for public health monitoring and research: much has been written about these potential threats (5). The Council of the EU aims to adopt its amendments in 2015, after which the Commission will draft a new compromise proposal to be discussed again in the European Parliament and the Council.

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5. See, for example: Nyrén O, Stenbeck M, Grönberg H. The European Parliament proposal for the new EU general data protection regulation may severely restrict European epidemiological research. *Eur J Epidemiol*. 2014;29(4):227–230. doi: 10.1007/s10654-014-9909-0.

An optional procedure (causal problem analysis) is available at this point to assist the subgroups in more fully analysing the problems affecting their assigned HIS component and generating ideas for interventions. This procedure is described in “Appendix II.E – guidance and example of causal problem analysis” of the original HMN tool *Guidance for the health information systems (HIS) strategic planning process*.⁷

Tasks

- The SWG subgroups discuss each HIS problem in turn and note down on flipcharts all ideas proposed for addressing and reducing the problem and its underlying causes.
- The SWG subgroups identify the most feasible and effective ideas for interventions and enter them into the right column (“Interventions”) of Table 5 next to the problem they are proposing to reduce, if not previously done.
- The list of objectives needs to be completed as follows:
 - subgroups each present their tables in plenary;
 - the core team consolidates the objectives and interventions into Tables 6 and 7.
- The SWG revisits the HIS vision to determine whether all its elements are being pursued and, if not, to suggest additional interventions.

Table 6. Example HIS objectives and indicators

Performance improvement objective	Indicator	Baseline value 2007	Target	Date of achievement
HIS component: resources/information category: leadership and governance				
To increase availability of accurate and complete health data from public and private sources (facilities)	Number of notifiable diseases mandated by legislation	0	8	2009
	Notification of work- and traffic-related injuries and deaths mandated by legislation	No	Yes	2009
	Proportion of licensed private facilities submitting HIS reports to the ministry of health	0	40%	2010
To improve the quality of health information	Number and proportion of health care facilities (public and private) correctly preparing and submitting HIS forms	60%	90%	2010

⁷ Guidance for the health information systems (HIS) strategic planning process: steps, tools and templates for HIS systems design and strategic planning. Geneva: World Health Organization; 2009 (<http://www.who.int/healthmetrics/tools/en/>, accessed 7 November 2014).

Performance improvement objective	Indicator	Baseline value 2007	Target	Date of achievement
To enhance HIS commitment, coordination and resources	Proportion of facilities that include budget for HIS operations	50%	90%	2010
HIS component: data management, dissemination and use				
To increase data sharing, management, analysis, dissemination and use	Minimum set of core health indicators updated regularly	No	Yes	2008
	Proportion of monitoring and evaluation frameworks and reports that reflect the use of multiple sources of data	NA	80%	2012
HIS component: data sources/information category: census, civil registration				
To increase the availability and use of population and sociodemographic data at local administrative levels	Proportion of communes with updated census and survey data	0	100%	2008
	Proportion of districts using population projection derived from the census to monitor health service coverage	50%	90%	2008
To improve coverage and use of vital registration, including causes of death at health facilities and the community level	Proportion of deaths occurring outside health facilities with identified cause (by verbal autopsy)	0%	50%	2010
	Coverage with certification of death	69%	90%	2010
HIS component: data sources/information category: service records				
To ensure availability of service records from private health facilities	Availability of service records from health facilities	Only public sector service records are available	Service records from public and private facilities	2011
To improve the quality of service records from health facilities	Proportion of health facilities (sample) producing data of acceptable quality	40%	80%	2010
To improve the use of information produced by service records for management of health services	Proportion of health facilities (sample) using information for management of health services	20%	60%	2010

Table 7. Summary of HIS objectives and interventions

Performance improvement objective	Intervention
HIS component: HIS resources/information category: leadership and governance ^a	
HIS component: data management, dissemination and use ^a	
HIS component: data sources/information category: census, civil registration ^a	
HIS component: data sources/information category: service records ^a	

^a These HIS components and information categories are added as examples.

9. Intervention implementation phasing

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 2: HIS strategic planning; step 8: intervention implementation phasing

Principal products

- Completed HIS intervention implementation phasing sheet

At this point it becomes possible to place the interventions onto a long- to medium-term time frame, thereby confirming which should be implemented first and which offices are responsible for their implementation.

At the end of the session the SWG and its various subgroups will have devised the preferred sequence and time frame for implementing the HIS interventions and confirmed the most appropriate responsible offices for managing the implementation of each.

The following list of materials is required to complete this step:

- completed list of priority HIS component problems and interventions from step 4 (see Table 5);
- an HIS intervention implementation phasing sheet (see Table 8). For an example of a completed version of Table 8, please refer to the original HMN tool *Guidance for the health information systems (HIS) strategic planning process*, pp. 85–86.⁸

Tasks

- The SWG subgroups set up in step 4 continue to work with the intervention implementation phasing for their assigned HIS components or information categories.
 - ★ **Tip.** The timeline for this phasing should be long enough to enable the entire array of strategies to be implemented and may therefore encompass more than one development plan period (8–10 years).
- The SWG subgroups discuss and identify the relationships between strategic interventions for their various priority HIS components. Some interventions and their products must be completed before others can begin. In addition, there may be overarching strategies and products that appear in some components' interventions that must precede all activities; these should be identified and announced as such.
- The SWG subgroups enter the sequence and duration of the intervention implementation into the phasing sheet (see Table 8). (Note: for details please refer to the original HMN tool *Guidance for the health information systems (HIS) strategic planning process*, p. 84.)⁸
 - ★ **Tip 1.** Note where interventions cannot begin until another one is completed.
 - ★ **Tip 2.** Group the first listing of interventions by priority information category and component in the sequence developed in step 7. The interventions should be numbered according to the HIS component they support and may all be given the same colour in the timeline.

⁸ *Guidance for the health information systems (HIS) strategic planning process: steps, tools and templates for HIS systems design and strategic planning*. Geneva: World Health Organization; 2009 (<http://www.who.int/healthmetrics/tools/en/>, accessed 7 November 2014).

- The SWG subgroups list and indicate important achievements within the various component strategies that are felt to deserve special attention and to be monitored as “milestones”.
 - ★ **Tip.** Indicate milestones with a Δ symbol on the intervention implementation phasing sheet (see Table 8).
- The SWG subgroups assign responsibility to offices. The designation of the responsible office is important and should be entered to the extent that the subgroups are aware of the most logical assignment of responsibility. All offices responsible for intervention implementation should be represented in the SWG at this point.
- Discuss the intervention phasing in plenary. Suggested discussion questions include the following.
 - Is the phasing conservative or aggressive or somewhere in between? (Be sure to understand the reasoning behind this.)
 - Does the sequencing establish constant progress (with little or no backtracking)?
 - Are responsibilities clearly defined?
- Identify and position in the plan overarching interventions, such as setting up coordination bodies.
- Enter the interventions from all HIS components into one spreadsheet.
- Sort and sequence the interventions by sequence number and year of initiation, as displayed in the original HMN tool *Guidance for the health information systems (HIS) strategic planning process*, p. 86.⁸

Table 8. HIS intervention implementation phasing sheet

Intervention number	Sequence number	Intervention title	Responsible office	2008		2009		2010		2011		2012		2013		2014		2015	

10. Detailed strategy design and implementation planning

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 3: detailed HIS planning and costing; step 9: detailed strategy design and activity implementation planning

Principal products

- Each proposed component strategy and set of interventions described in detail, including functional and technical specifications of the intended result and products
- Completed detailed activity implementation plans for the strategies of each HIS component and for the entire HIS strategy

It is anticipated that the HIS component strategies and their interventions will need to be further designed and planned, well beyond what was possible during steps 7 and 8. Each office responsible for one or more strategies should convene small technical strategy design working groups to provide further specifications for each strategy and intervention. With further clarity about each strategy it becomes possible for the same technical working groups to devise the detailed activity implementation plan for the first one or two years of implementation.

At the end of this step each priority HIS component will be supported by sufficiently detailed design specifications to enable early intervention implementation to begin and a detailed operational activity plan. The core team will have consolidated the individual activity plans into one overall implementation plan for attachment to the strategy and plan document. For each strategy beginning implementation during this initial period the plan will display the activities, their products and any critical additional resources needed, along with the responsible offices and time frame.

The SWG will have identified the offices with primary responsibility for HIS strengthening within each priority HIS component or information category. These offices, in coordination with the core team, will need to organize one or more technical working groups to conduct further design and determine technical specifications for each of the strategic interventions proposed for each priority HIS category and component. This task will require the participation of experts within the responsible offices and possibly national and external consultants. The time allowed for this step should be limited to two weeks; this means that detailed feasibility studies and design work will often have to be placed into the activity plan as an early operational activity.

The following list of materials is required to complete this step:

- the HIS vision description produced in step 5;
- the HIS component strategies and interventions defined in step 4 (see Table 5);
- the table of intervention implementation phasing from step 8 (see Table 8);
- a worksheet for the HIS activity implementation plan (note: Table 9 is partly completed as an example).

Tasks

- The technical working group identifies the major activities required to implement the various interventions.
- Based on the summary of HIS objectives and interventions in Table 7, enter the objectives for each HIS component and/or information category and their numbers into the worksheet (see Table 9 for an example of a partly completed worksheet).
- Enter the activities to implement each strategy into the worksheet.
 - ★ **Tip 1.** Expand this list of implementation activities in more detail than appeared in the strategy intervention phasing produced in steps 4 and 5.
 - ★ **Tip 2.** List activities in their logical implementation sequence (see Table 9 for an example). (Note: in the example the hierarchical numbering system links objectives (first digit), interventions (second digit) and activities (third digit).
- The technical working group enters the primary product of each activity into the worksheet. This helps to determine the appropriate sequence of activity implementation.
 - ★ **Tip.** Completion of these products signals completion of the activity and should be defined with that purpose in mind. Especially important products that enable initiation of other interventions may be labelled as milestones.
- The technical working group enters the start and completion dates for each activity and the responsible office and officer into the worksheet. Designation of the responsible office and officer is important and should be entered to the extent that each working group is aware of the most logical assignment of responsibility.
- The technical working group enters the types of additional resources required for the activity into the worksheet.
 - ★ **Tip.** Enter the types of resources but not the amounts: the subsequent subgroup costing effort will determine these. Possible types of resources include funds for development work, technical support, equipment, materials and documentation, training and fellowships and working group support.
 - While most of the activities will be one-off development work, some may be repetitive in nature and eventually become additional routine activities and expenses – for example, salaries of new staff or Internet access expansion costs. These should be indicated in the worksheet so that their resource requirements can be indicated as routine in the costing and budget produced by the core team in the next step.
- Discuss the draft activity plans with the other subgroups and the core team.
- Identify overarching interventions in the plan, such as setting up coordination bodies.
- Consolidate the detailed activity plan into one spreadsheet.
- Check to see that the detailed implementation plan contains:
 - regular progress reviews;
 - special evaluations efforts;
 - appropriate revision efforts – particularly those designed to respond to new health system development initiatives growing out of medium-term health development planning and programme design;
 - linkages with regular service and programme review processes and other special assessments of relevance to the priority HIS components.
- Ensure links between the HIS strategy and its evaluation and the research community's agenda.
- Embed the detailed implementation plan within the national medium-term health development plan and annual development and operating budgets by listing appropriate activities within the plan.

Table 9. HIS activity implementation plan for initial implementation period (partly completed as an example)

Activity	Primary product	Time frame		Responsible		Types of additional resources
		Start (M-Y)	Complete (M-Y)	Office	Officer	
Objective 1: increase the availability of accurate and complete health data from public and private sources						
<i>Intervention 1.1: review and strengthen existing legislation, regulations and administrative procedures related to health data recording, storage, retrieval, analysis and dissemination governing both public and private sectors</i>						
1.1.1: review existing legislation related to HIS covering diseases, accidents and injuries notification from both public and private sectors	Inventory of existing legislation and gaps	Jan-08	Apr-08			
1.1.2: revise and enact legislation related to HIS covering diseases, accidents and injuries notification from both public and private sectors	Newly enacted legislation Δ	May-08	May-10			
1.1.3: develop legislation regarding data and reporting of health insurance from both public and private sectors	Legislation on health insurance	Jan-08	Jan-10			
<i>Intervention 1.2: strengthen and develop coordinated mechanisms for enforcement of legislation, regulations and administrative procedures related to health data</i>						
1.2.1: develop procedures, responsibilities and standard reports for monitoring adherence to the various HIS and civil registration laws and regulations and for taking corrective action (e.g. failure to report infectious disease, suspend license for non-reporting)	Procedure, responsibility and regular reports of the monitoring group Δ	Jan-10	Onward			
Objective 2: improve the quality of health information						
<i>Intervention 2.1: strengthen HIS supervision and feedback focused on data quality and performance standards adherence</i>						
2.1.1: review and revise HIS data quality control guidelines, supervision and feedback system (develop checklist, guidelines, resources) for both public and licensed private facilities	Revised guidelines, checklist, supervision and feedback plan	Jan-08	Aug-08			
2.1.2: conduct regular quarterly supervision and feedback on health data to verify completeness, consistency and accuracy by: <ul style="list-style-type: none"> • central HIS staff to provincial health office (PHO) • HIS staff at public health districts (PHDs) to the district level 	<ul style="list-style-type: none"> • 4 supervision visits/year to PHOs • 4 supervision visits per year to the district level 	2008	Ongoing			Financial Financial

Activity	Primary product	Time frame		Responsible		Types of additional resources
		Start (M-Y)	Complete (M-Y)	Office	Officer	
2.1.3: use findings from HIS supervision for feedback to relevant stakeholders	HIS topics raised	Sept-08	Continuing			
2.1.4: prepare procedure and evaluation tool for conducting evaluation to validate quality of indicator data from both public and licensed private health facilities	Procedure and evaluation tool	July-09	Aug-09			
2.1.5: conduct annual evaluation of the indicator data quality from both public and licensed private health facilities	Evaluation report	2009	Annually			Two evaluators
<i>Intervention 2.2: conduct special assessments of HIS facilities (tools, materials, furniture, information and communication technology (ICT) means, location and staffing) at all levels</i>						
2.2.1: prepare procedure/checklist and assessment tool for special assessment of HIS facilities	Assessment tool/checklist Assessment report format	July-08	End 2008			
2.2.2: conduct special assessment of HIS facilities every third year, hold findings dissemination workshop (and support budget provision as necessary)	Assessment findings Awareness of the status of the HIS facilities	End 2008	Triannually			Assess staff and travel costs Workshop costs
<i>Intervention 2.3: provide incentives and benefits linked to merit-based performance incentive (MBPI) for staff involved in the HIS at all level</i>						
2.3.1: define HIS performance standards and the incentives and benefits to be provided	Procedures for awarding incentives					
2.3.2: provide incentive link to MBPI to HIS staff at all levels	Incentive provided according to MBPI	TBD				Funds and training
Objective 3: enhance HIS commitment						
<i>Intervention 3.1: strengthen the capacity of staff involved in the HIS through in-service training and degree programmes.</i>						
3.1.1: develop HIS training curriculum for staff in the relevant institutions, including HMIS recording and reporting and data quality control	Training curriculum	Aug-08	Jan-09			
3.1.2: conduct HMIS training	50 staff trained per year	Continuing				Training costs
3.1.3: review and revise existing curriculum for short-course training	Training curriculum	Jan-09	Feb-09			

Table 9 contd

Activity	Primary product	Time frame		Responsible		Types of additional resources
		Start (M-Y)	Complete (M-Y)	Office	Officer	
3.1.4: conduct short-course training of staff in the relevant institutions on data analysis and use for decision-making	Short course	May-09	Jan-11			Per diem cost
3.1.5: send health staff for formal training [6 months to 2 years] in epidemiology and bio-statistics	25 short-course fellows 2 degree programme fellows	2008	Continuing			Tuition and travel costs
<i>Intervention 3.2: strengthen and maintain the continuing authority and responsibility of the SWG as a technical instrument of intersectoral coordination for health-related data and link to the Statistical Advisory Council (SAC) and relevant ministerial bodies/agencies</i>						
3.2.1: conduct regular and ad hoc meetings of the SWG	6 meetings per year, reports	Continuing				Venue – lunch
<i>Intervention 3.3: integrate the HIS strategy and implementation plan into the future health strategic plan (HSP) 2008–2015 and health sector work plans.</i>						
3.3.1: integrate HIS strategy into HSP 2008–2015	HIS development plan included in HSP 2008–2015 Δ	Jan-08				
3.3.2: include HIS activities into AOP as one subprogramme	HIS activities have separate budget line in facility budget	Jan-09				

11. Strategy costing

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 3: detailed HIS planning and costing; step 10: HIS strategy costing

Principal products

- Completed table of strategy resource requirements for each HIS component and intervention and for the total HIS strategy
- Summary information of costs by HIS component, type of activity and year

The purpose of this step is to develop an activity-driven budget for the HIS strategy that will enable the steering committee, core team and SWG (the national HIS development team) to identify the financial resources required to implement the strategy. The costing will be divided into core and additional activities. It will then be possible to approach government departments and donors to identify sources for funding specific HIS strategies.

At the end of this step, through the combined efforts of the core team and the technical working groups, a cost summary for the HIS strategy will have been created. This will include details for the initial 1–2-year implementation period and projections but fewer details for years 3–5 and 5–10. The cost summary will enable the national HIS development team to pursue and secure funding for the HIS strategies – including both HIS development costs and new recurrent costs – from the government and donors or lenders.

The following list of materials is required to complete this step:

- the table of intervention implementation phasing from step 8 (see Table 8);
- the detailed HIS activity implementation plan (see Table 9 for a partly completed example);
- example HIS strategy resource requirements (see Table 10 for a partly completed example);
- example common cost elements and factors (see Table 11);
- examples of costing summaries (see Annex 16).

Tasks

- The core team costs the strategies and activities in detail.
- Identify activities that have a resource requirement in Table 9 and list them in Table 10.
- Assemble the current cost factors. It may require some effort to record current cost factors based on past experience. Place them in the right column of Table 11 (empty version).
- Enter the cost elements and factors in Table 10.
 - ★ **Tip.** Create these so that the entry becomes the algorithm or equation for calculating the cost. For example, if the activity is a workshop its cost can be determined by the following: (number of workshop days) × (number of participants + facilitators) × (per diem or honorarium per day) + (cost of the venue, lunch and tea). This algorithm can then be added to the “Cost coefficients” column in Table 10.
- Using these algorithms, calculate detailed costs for the initial 1–2 year implementation period.
- Project the remaining development costs and implications for additional recurrent costs across the remaining years of the full HIS strategy implementation to the continuing activities.
- Develop costing summaries (see Annex 16 for examples).

Table 10. HIS strategy resource requirements (partly completed as an example)

Activity no.	Title	Type of expenditure	Cost coefficients	Recurrent or development	Activity type	Participants	Total cost	Development	Recurrent
2.1.2	Quarterly HIS supervision visits to PHDs	Travel costs	4 visits per year × 8 years × 24 PHDs × cost/trip	Recurrent	Supervision	1	US\$ 115 200	-	US\$ 115 200
3.1.4	Short course on data analysis and decision-making	Short-course training	1 course/year × 40 participants × US\$ 20/participant × 5 days + 5 × US\$ 100	Development	Workshop/training	40	US\$ 55 200	US\$ 55 200	-

Table 11. Example common cost elements and factors

Type of resource requirement	Costs by factor
Average in-country travel cost per person or vehicle per day	Central driver go outside capital: US\$__ per day Provincial driver to come to the capital: US\$__ per day Gasoline: 1 km = 0.20L = US\$ 0.__ (The most distant province = __ km; the nearest province = __ km)
Average daily national consultant salary by type: <ul style="list-style-type: none"> • software consultant • support system expert (human resources, drug management, facility maintenance, etc.) • other (e.g. evaluation) 	Daily consultant cost by type
National per diems: <ul style="list-style-type: none"> • in own city • elsewhere 	In own city: US\$ __ per day Elsewhere: US\$ __ per day
Training and meeting participant per diem or stipend per day	Training and meeting participant per diem or stipend per day
Average training course or meeting cost (venue, support, materials, tea and lunch) per day	US\$__ per person per day (include: venue rental, lunch and coffee break) Training materials: US\$__ per person Projector rental: US\$__ per day Backdrop with two logos of banner: US\$__
Average international short-course cost (1–6 months): <ul style="list-style-type: none"> • tuition • stipend • accommodation • travel 	Tuition fee = US\$__ per participant Stipend = US\$__ per day Accommodation = US\$__ per night Air travel (including airport tax)
Average degree fellowship cost per year	Tuition Stipend Accommodation Travel
International consultant	Average daily salary Average travel cost per visit
Metadata dictionary – software cost	Range of development costs can be provided by the HMN Secretariat
Data warehouse – hardware and software cost, by category, size, data sources and user numbers	Range of development costs can be provided by the HMN Secretariat
Document and publication production cost – by size category per copy	US\$ 0.__ per page US\$__ per document
Cost of working group and design team processes – by size and duration	Any group process costs per participant
Common survey costs	Historical survey costs factored by: <ul style="list-style-type: none"> • number of sampling units • number of field teams • participants per team • per diem and travel costs per day
Communication costs: <ul style="list-style-type: none"> • Telephone • Internet – email • Mail 	Telephone: <ul style="list-style-type: none"> • connection and installation fee • monthly fee and average cost per minute • international calls average cost Internet – email – cost per service unit per month Mail – average cost per piece

12. Finalization, review and approval of strategy; strategy monitoring and periodic evaluation

Place in the HMN framework

- Phase 2: priority-setting and planning
- Module 3: detailed HIS planning and costing; step 11: HIS strategy monitoring and evaluation and step 12: the HIS strategic plan document

Principal products

- HIS strategy evaluation framework table
- HIS strategy monitoring framework table
- A completed draft HIS strategy and plan document, including all annexes
- A final document prepared for distribution, discussion and review
- Procedures and responsibilities for managing the process of plan review, approval and funding

The approach and indicator framework is an important final planning product to be developed by the core team for use as a management tool. It should also be included as an annex to the HIS strategy document to be used to monitor and evaluate HIS strategy implementation and the impact on the performance of priority HIS components and information categories.

Step 12 of module 3 prepares the major products of the HIS strategic planning process as a strategic plan document for presentation to the SWG and steering committee – along with other levels of the health sector and system and cooperating sectors – and to existing and potential funders and donors. It includes the process of reviewing the document, revising it for formal distribution and review, managing the review of the plan and moving it towards approval and funding.

At the end of this step the core team will have produced indicator tables and a description of the monitoring and evaluation framework and process, as well as a completed HIS strategic plan document, which provides a full description and rationale for approving and funding the strategy and a number of annexes. These annexes provide the details needed for decision-making and funding. This step also includes the tasks needed to obtain necessary policy and management support from the ministries and departments involved, as well as government and donor funding.

The following list of materials is required to complete this step:

- the products from all the preceding steps of the HIS strategic planning process, some of which are used in their entirety, often as annexes;
- a note on HIS strategy monitoring and evaluation (see Annex 17);
- tables for presenting the monitoring and evaluation framework (see Tables 12 and 13 – for examples of completed tables please refer to the original HMN tool *Guidance for the health information systems (HIS) strategic planning process*, pp. 132 and 134);⁹
- a note of guidance on preparing the HIS strategy and planning document (see Annex 18);

Note: for an annotated outline of a model HIS development strategy and plan, please refer to the original HMN tool *Guidance for the health information systems (HIS) strategic planning process*, p. 144).⁹

⁹ Guidance for the health information systems (HIS) strategic planning process: steps, tools and templates for HIS systems design and strategic planning. Geneva: World Health Organization; 2009 (<http://www.who.int/healthmetrics/tools/en/>, accessed 7 November 2014).

Table 12. HIS strategy objective and target achievement evaluation framework

Priority HIS component or information category _____
 Reporting responsibility: _____

Component improvement indicators (objectives in bold)		Baseline value	Objective	Objective year	Data source	Frequency of measurement

Table 13. HIS component strategy implementation monitoring

Activity	No.	Short title	Scheduled start	Actual start	Schedule		Actual completion	Expected product or milestone	Actual product	Resources		
					Scheduled completion	Actual completion				Required	Available	
Intervention number and title												
Intervention number and title												

HIS strategy monitoring and evaluation

The steps of the HIS strategy design and implementation planning generate the basis for measuring, monitoring and evaluating the various levels of the HIS strategic plan results framework. At this point in the preparation of the plan, therefore, it is only necessary to assemble the indicators for each level (described in Annex 17) within monitoring and evaluation tables, indicating the frequency and method of measurement of the various indicators.

Tasks

- Technical working groups review all the planning products pertaining to their subsystem:
 - problem definitions with indicators
 - objectives and their indicators
 - interventions and their phasing
 - activities, products, milestones and targeted dates
 - additional resource requirements.
- Technical working groups confirm which of these indicators are now felt to be most appropriate for routine monitoring and periodic evaluation. Enter them into monitoring and evaluation indicators tables (see Tables 12 and 13).
- Choose those indicators deemed most important for inclusion with a consolidated monitoring and evaluation framework:
 - gather all component working group monitoring and evaluation tables;
 - core team meets with representatives of each technical working group to review the entire set of tables;
 - choose which indicators of each level are felt to be the most important to place within a consolidated monitoring and evaluation framework (the monitoring and evaluation tables from this step will be part of the HIS strategic plan document created in step 12).
- Core team and technical working group representatives agree on the schedule and method of reporting their monitoring and evaluation results to the steering committee, core team, SWG and donor organizations.

The HIS strategic plan document

Tasks

- Confirm the primary authors of the plan document (these will have been determined early in the strategic planning process, so this task is a re-confirmation). They should be present in the core team and/or SWG and should fully participate in the steps of the planning process.
- Primary authors write the document. The intensive writing period should be set up and managed closely, as with all preceding steps. It should be completed within 10 working days through the efforts of a small group of writers, supported by other members of the core team who assist with the formulation and finalizing of each product of the planning process.
- Select members of the SWG review and comment on the completed draft.
 - ★ **Tip.** Use members who did not participate in its drafting but who are fully familiar with the content of the strategy and plan and can offer suggestions to improve its accuracy and readability.

- The steering committee and core team devise and implement a modest plan review process by senior policy-makers and ministries. The goal is to simultaneously inform and obtain feedback and support from senior policy-makers in the ministries supporting strategy implementation.
 - ★ **Tip.** Schedule the process for completion within two weeks of the final draft becoming available.
- Inform and obtain feedback from serious potential donor agencies known to have an interest in this subject, particularly those who already support HIS development.

13. Translation of evidence into policy

This section outlines the resources available to countries for designing the final aim of national health information strategies: improving the translation of information into policy. They include knowledge resources (through an inventory of multilanguage evidence databases available to users), tools (with a selection of practical instruments for translating evidence into policy), networks, mechanisms and platforms (with a selection of networks for knowledge translation, including EVIPNet, coordinated by the WHO Regional Office for Europe). The section concludes with suggestions for generation and sharing of evidence, as well as the pooling of such information into easily accessible sources.

Background

Evidence-informed policy-making refers to the systematic and transparent use of the best available research evidence to strengthen health systems.¹⁰ Studies have shown that policies influenced by sound scientific evidence and best practices can significantly improve the achievement of positive public health outcomes.¹¹ Despite significant investment in health research worldwide, however, there remains a significant gap between what is scientifically known and what is done.¹²

Governments have to make health-related decisions daily; they rely on access to systematically conducted and transparently reported health information. Inter alia, especially in the context of the new European policy framework, Health 2020, Member States and stakeholders (such as civil society striving to influence health policy) depend on reliable health information that they can easily understand and use in order to implement and monitor policy objectives. Health data, through the computation of indicators based on these data, are crucial to identify the magnitude of health problems at national levels. The prevalence of a risk factor, the burden of disease in a country or the magnitude of health inequalities, for instance, indicates which risks or diseases present the biggest national challenges for the health of population, for which decision-makers need to find solutions and allocate resources as a matter of priority. Health data enable benchmarking: comparing the current conditions prevalent in a country with a gold standard or with the situation in other jurisdictions. Health data are equally important to monitor progress towards achieving health goals, such as the Health 2020 targets and the health-related Sustainable Development Goals, and to demonstrate the success of implementing health policies and related interventions. Table 14 outlines the stages of the policy cycle in which data and research evidence play a role – from the agenda-setting process to evaluating policy impact.

While many national and international organizations in the WHO European Region are active in gathering, monitoring and reporting public health information, expertise in this area remains fragmented.¹³ Moreover, HIS have been reported as insufficiently used throughout Europe to inform health policy-making, and opportunities to support and advance efforts to systematically and sustainably overcome the research–policy gap are weak or lacking.¹⁴

¹⁰ Oxman AD, Lavis JN, Lewin S, Fretheim A. SUPPORT tools for evidence-informed health policy-making (STP) 1: What is evidence-informed policy-making? *Health Res Policy Syst.* 2009;7(Suppl 1):S1.

¹¹ Lavis JN, Bécerra Posada F, Haines A, Osei E. Use of research to inform public policy-making. *Lancet.* 2004;364:1615–1621.

¹² Strauss S, Tetroe J, Graham ID. Defining knowledge translation. *CMAJ.* 2009;181(3–4):165–168.

¹³ Translating evidence into effective public health policy. In: WHO/Euro media centre [website]. Copenhagen: WHO Regional Office for Europe; 2013 (<http://www.euro.who.int/en/media-centre/sections/press-releases/2013/10/translating-evidence-into-effective-public-health-policy>, accessed 15 September 2014).

¹⁴ Lavis J, Permanand G, Catalo C, BRIDGE Study Team. How can knowledge brokering be advanced in a country's health system?

Table 14. Uses of data and research evidence in the policy-making process

Stage of the policy cycle	Data used	Research evidence used and purpose
Clarifying a problem	Yes	Yes for comparisons and framing
Framing options	No	Yes for benefits, harms and costs
Bringing about change	No	Yes for the barriers to change and the benefits, harms, costs etc. of implementation strategies that address these barriers
Monitoring and evaluation	Yes	Yes for evaluating impact

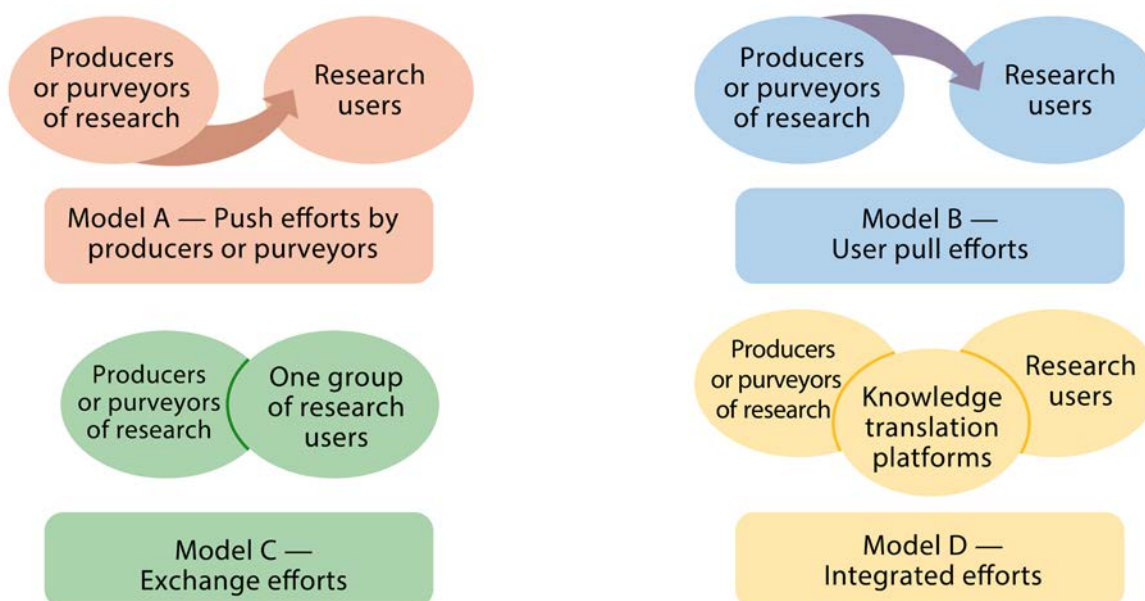
To foster the translation of information and evidence into effective policy (in accordance with the Health 2020 framework), evidence producers and users need to be actively involved and interact in the process. Interaction can be promoted by:

- push efforts – through which evidence producers tailor and target research evidence better to the users’ needs and facilitate timely access to evidence sources;
- pull efforts – through which users’ capacity to access, appraise, adapt and use reliable evidence is strengthened;
- linkages and exchange efforts – through which researchers, policy-makers and other research stakeholders develop partnerships, projects and shared understandings throughout the research production and/or the policy cycle;
- integrated efforts – through which all the above are integrated and institutionalized by the creation, for example, of platforms such as the “knowledge translation platforms” promoted by EVIPNet globally and in Europe (see Fig. 4).¹⁵

Copenhagen: European Observatory on Health Systems and Policies; 2013 (<http://www.euro.who.int/en/about-us/partners/observatory/bridge-series/how-can-knowledge-brokering-be-advanced-in-a-countrys-health-system>, accessed 9 November 2013).

¹⁵ Lavis J, Lomas J, Hamid M, Sewankambo N. Assessing country-level efforts to link research to action. *Bull World Health Organ.* 2006;84(8):620–628.

Fig. 4. Strategies for linking research to action



Source: Lavis JN, Lomas J, Hamid M, Sewankambo NK. Assessing country-level efforts to link research to action. *Bull World Health Organ.* 2006;84(8):620–628.

The following sections provide further details on four key resources for evidence-informed decision-making: knowledge resources; tools; networks, mechanisms and platforms; and the generation and sharing of evidence, while promoting any of the above knowledge translation efforts.

Knowledge resources

Timely access to reliable, high-quality evidence is one of the key facilitating factors of evidence-informed policy-making. The inventory of selected evidence databases (available in multiple languages) and clearinghouses outlined below can assist Member States in these efforts. Each has different strengths and weaknesses, and they are best used in combination.

- PubMed is the pre-eminent online global database of peer-reviewed literature. It contains references to more than 23 million citations for biomedical and health literature from MEDLINE, life science journals, and online books. Retrieved citations may include links to full-text content from PubMed Central and individual publisher websites. Some reflect open-access principles – freely available to the reader – while others stand behind so-called “pay walls” and require either institutional access or a user fee.¹⁶
- Citizens of some European countries may qualify for either free or low-cost access to a wide range of subscription-based journals through WHO’s HINARI programme.¹⁷

¹⁶ PubMed [online database]. Bethesda, MD: National Center for Biotechnology Information; 2014 (<http://www.ncbi.nlm.nih.gov/pubmed>, accessed 20 November 2014).

¹⁷ HINARI access to research in health programme [website]. Geneva: World Health Organization; 2014 (<http://www.who.int/hinari/en/>, accessed 20 November 2014).

- The Virtual Health Library is a decentralized and dynamic information collection, designed to provide equitable access to scientific knowledge on health. It is maintained by BIREME (the Latin American and Caribbean Center on Health Sciences), a PAHO (Pan American Health Organization) specialized centre in Brazil. This collection operates as an online network of products and services to meet progressively the need for health information by authorities, administrators, researchers, professors, students, professionals, the media and the general public. It sets itself apart from other information sources available on the Internet owing to its selection criteria and quality control.¹⁸
- The Cochrane Collaboration is a global independent network of health practitioners, researchers, patient advocates and others, who together respond to the challenge of making the vast amounts of evidence generated through research useful for informing health decisions. It is a not-for-profit organization with collaborators from over 120 countries working together to produce high-quality, relevant, credible and accessible health information and other pieces of synthesized research evidence that is free from commercial sponsorship and other possible conflicts of interest. The work of the Cochrane Collaboration is internationally recognized as the benchmark for high-quality information about the effectiveness of health care.¹⁹
- The Campbell Collaboration is an international research network that produces systematic reviews of the effects of social interventions. The Campbell Collaboration is based on voluntary cooperation among researchers of a variety of backgrounds and features several coordinating groups. Each coordinating group has two representatives on the steering group, the overall strategic and policy-making body for the Collaboration. The Campbell Collaboration helps people make well informed decisions by preparing, maintaining and disseminating systematic reviews in education, crime and justice, social welfare and international development.²⁰
- Health Systems Evidence is a continuously updated repository of syntheses of research evidence about governance, financial and delivery arrangements within health systems, and about implementation strategies that can support change in health systems. It also contains a continuously updated repository of economic evaluations in these same domains, descriptions of health system reforms and health systems, as well as a variety of types of complementary content. Health Systems Evidence is said to be “the world’s most comprehensive, free access point for evidence to support policy-makers, stakeholders and researchers interested in how to strengthen or reform health systems or in how to get cost-effective programmes, services and drugs to those who need them”. The website also has a section dedicated to policy-makers with the following headings: health systems evidence, rapid response programme, evidence briefs and stakeholder dialogues, citizen briefs and panels, health systems learning.²¹
- Health evidence aims to help the public health workforce and policy-makers search for, interpret and apply research evidence to their local context.²²
- Rx for Change is a database of research evidence focusing on the effects of strategies to promote changes in health care. It supports decision-makers in identifying the best change strategy by summarizing the key findings from systematic reviews related to health technology. The Rx for Change database was established to support decision-makers in searching, finding and using research about interventions related to the use of drugs and other health technologies. It is structured into categories based on types of behaviour-change strategy: professional, consumer, organizational, financial and regulatory. It provides:

¹⁸ Virtual health library [website]. São Paulo: BIREME; 2014 (<http://regional.bvsalud.org/php/index.php?lang=en>, accessed 20 November 2014).

¹⁹ The Cochrane Collaboration [website]. Oxford: The Cochrane Collaboration; 2014 (<http://www.cochrane.org/>, accessed 20 November 2014).

²⁰ The Campbell Collaboration [website]. Oslo: The Campbell Collaboration; 2014 (<http://www.campbellcollaboration.org/>, accessed 20 November 2014).

²¹ Health systems evidence [website]. Hamilton: McMaster University; 2014 (<http://www.mcmasterhealthforum.org/hse/>, accessed 20 November 2014).

²² Health evidence [online database]. Hamilton: McMaster University; 2014 (<http://www.healthevidence.org/>, accessed 20 November 2014).

- overall summaries of interventions based on evidence from systematic reviews;
 - summaries of related individual reviews;
 - quality assessments and summarized reviews that highlight key characteristics and relevant evidence for decision-making;
 - links to the individual studies included in each review.²³
- The Global Health Observatory is the “one-stop shop” for the world’s largest and most comprehensive collection of up-to-date health data. It provides data and analyses on global health priorities. Each of its theme pages provides information on the global situation and highlights important trends using core indicators, database views, major publications and links to relevant webpages. Current theme pages include the MDGs, NCDs, health systems, substance use and mental health.²⁴

Most of these knowledge resources are international databases featuring knowledge from around the world. This kind of knowledge often needs to be complemented by meaningful, context-specific evidence that is typically available in regional, national or institutional databases.

- Quandl is an open platform hosting 507 databases, which can be accessed through a single easy-to-use website. Quandl delivers the data in the format the users require, provides direct connections to all major analysis tools and is transparent to source.²⁵
- For the United Kingdom, a sound source of data and knowledge can be found through the NHS via the Health and Social Care Information Centre.²⁶
- For most European countries, media coverage of health issues can be found via LexisNexis.²⁷

Tools

This section presents a selection of practical instruments for translating evidence into policy. Many of these tools draw upon the experience, evidence and approaches of the broader knowledge translation field, which looks at specific ways of connecting research and policy communities. While this is a relatively young field, it has nonetheless developed a range of key innovations and essential pathways for research evidence to become an increasingly trusted input into the policy development process. Each tool is briefly described and resources for hands-on guidance on how to use the tools are listed.

Evidence briefs for policy are research syntheses presented in a user-friendly format, providing the best available evidence to inform policy-making. They start with a high-policy issue (for example, the retention of health workers in rural and remote areas) and identify the related available research evidence in order to outline:

- what is known about the underlying problems;
- possible policy and programme options to address the problems, including an outline of the known benefits, harms and costs of these options;
- a review of the barriers to implementation and strategies to address them.

²³ Rx for change [website]. Ottawa: Canadian Agency for Drugs and Technologies in Health; 2014 (<http://www.cadth.ca/en/resources/rx-for-change>, accessed 13 December 2014).

²⁴ Global Health Observatory [website]. Geneva: World Health Organization; 2014 (<http://www.who.int/gho/en/>, accessed 20 November 2014).

²⁵ Quandl [online database]. Toronto: Quandl; 2014 (<https://www.quandl.com/collections>, accessed 20 November 2014).

²⁶ Health and Social Care Information Centre [online database]. Leeds: Health and Social Care Information Centre (<https://indicators.ic.nhs.uk/webview/>, accessed 20 November 2014).

²⁷ LexisNexis [online database]. Dayton, OH: LexisNexis; 2014 (<http://www.lexisnexis.com/hottopics/Inacademic/>, accessed 20 November 2014).

Complementing the results of systematic reviews with context-specific research results, evidence briefs for policy are based on the 1:3:25 format (one page with key messages, a three-page structured summary and a 25-page technical report), which increases the likelihood that policy-makers will read and use the findings.²⁸

Guidance on how to develop an evidence brief for policy is provided in the peer-reviewed article “SUPPORT tools for evidence-informed health policy-making (STP) 13: preparing and using policy briefs to support evidence-informed policy-making”²⁹ and the Supporting the Use of Research Evidence (SURE) guides for preparing and using evidence-based policy briefs are accessible via the WHO-hosted SURE website.³⁰

Following the completion of an evidence brief, the next step in the process is to convene one or more policy dialogues. These allow research evidence (outlined in the evidence brief for policy) to be considered together with the views, experiences and tacit knowledge of those who will be involved in, or affected by, future decisions about a high-priority issue. A number of factors have fuelled increased interest in the use of policy dialogues, including the recognition that:

- locally contextualized “decision support” is needed for policy-makers and other stakeholders;
- research evidence is only one input into the decision-making processes of policy-makers and other stakeholders;
- many stakeholders can add significant value to these processes;
- many stakeholders as well as policy-makers can take action to address high-priority issues.

Guidance on the use of policy dialogues is provided in the peer-reviewed article “SUPPORT tools for evidence-informed health policy-making (STP) 14: organizing and using policy dialogues to support evidence-informed policy-making”³¹

Rapid response units draw on some of the lessons and strengths of the evidence brief and policy dialogue processes. They respond to the time pressures that decision-makers often face, producing “rapid responses” presenting research evidence that has been both appraised and contextualized. This requires them to clarify the question being asked, find relevant research (ideally a systematic review) and reliably summarize and communicate the research findings. Rapid responses are presented to decision-makers anywhere between hours and several weeks following a request.

While no explicit tool is available on how to establish rapid response units in a European setting, the SURE project – designed to support WHO and its partners in strengthening evidence-informed policy-making in Africa – has developed a set of resources for preparing rapid responses for policy-makers in need of research evidence.³² The Uganda SURE/EVIPNet team typically takes between 24 and 48 hours to respond to policy-maker demand around a specific topic or problem, producing the full rapid response in a short agreed time frame. Another useful issue brief is provided by the McMaster Health Forum in Canada.³³

²⁸ Evidence briefs for policy [website]. Geneva: World Health Organization; 2014 (http://www.who.int/evidence/resources/policy_briefs/en/, accessed 20 November 2014).

²⁹ Lavis J, Permanand G, Oxman A, Lewin S, Fretheim A. SUPPORT tools for evidence-informed health policy-making (STP) 13: preparing and using policy briefs to support evidence-informed policy-making. *Health Res Policy Syst.* 2009;7(Suppl 1):S13. doi: 10.1186/1478-4505-7-S1-S13.

³⁰ SURE guides [website]. Geneva: World Health Organization; 2014 (<http://global.evipnet.org/SURE-Guides/sure%20guides.html?page=source%2Fabout.html>, accessed 20 November 2014).

³¹ Lavis J, Boyko J, Oxman A, Lewin S, Fretheim A. SUPPORT tools for evidence-informed health policymaking (STP) 14: organising and using policy dialogues to support evidence-informed policymaking. *Health Res Policy Syst.* 2009;7(Suppl 1):S14. doi:10.1186/1478-4505-7-S1-S14.

³² Rapid responses [website]. Geneva: World Health Organization; 2014 (<http://www.who.int/evidence/sure/rapidresponses/en/>, accessed 20 November 2014).

³³ Wilson M, Lavis J, Gauvin F. Issue brief: developing a “rapid-response” program for health system decision-makers in Canada. Hamilton: McMaster Health Forum; 2014 (<https://macsphere.mcmaster.ca/handle/11375/14877>, accessed 20 November 2014).

The Ontario Ministry of Health and Long-term Care put together a guide intended to assist public health units in developing an emergency response plan that meets fundamental planning requirements as outlined in the Public Health Emergency Preparedness Protocol. The planning components specified are the minimum elements of an emergency response plan. Additional components can be included in the emergency response plan, but these are left to the discretion of the public health units. The Ministry website contains the guide, Protocol and about 500 completed rapid literature reviews.³⁴

The Canadian Agency for Drugs and Technologies in Health provides decision-makers with the evidence, analysis, advice and recommendations they require to make informed decisions in health care. Constant, rapid and often expensive advances in medical technologies make evidence-based information more essential than ever in health care decision-making. While comprehensive assessments are used to support many important deliberations, the urgency of some decisions requires a more immediate response. To support these time-sensitive decisions, the Agency launched its Health Technology Inquiry Service, known as the Rapid Response Service, in February 2005. To date it contains approximately 2100 synthesis products addressing technology effectiveness questions.³⁵

The Ontario HIV Treatment Network Rapid Response Service provides access to research evidence in response to questions from community-based HIV/AIDS organizations in Ontario to help support evidence-informed programmes, service delivery and advocacy. It conducts searches of the scientific literature and contacts experts in appropriate fields to locate key information resources. Searches typically focus on identifying:

- systematic reviews (syntheses of the global pool of research evidence about a specific topic or question);
- primary research evidence (individual research studies related to the requested topic).

From the research evidence identified a brief synthesis of the key findings on the requested topic is developed. The Network's website contains about 80 rapid responses.³⁶

Networks, mechanisms and platforms

This section presents selective knowledge translation networks, mechanisms and platforms. From the establishment of WHO's EVIPNet in 2005,³⁷ a proliferation of initiatives has been designed to connect research, policy and civil society communities.

The launch of EVIPNet Europe in 2012 (coordinated by the WHO Regional Office for Europe) established a Europe-specific mechanism for exploring and advancing key knowledge translation techniques tailored to the European context.³⁸ Like the global network, EVIPNet Europe seeks to improve public health and reduce inequities by increasing country capacity systematically to use the best available scientific evidence to guide health systems policy development by applying the tools outlined above. As a knowledge translation network, EVIPNet Europe operates on three separate but closely interconnected levels:

³⁴ Ontario public health standards: public health emergency preparedness [website]. Toronto: Ministry of Health and Long-term Care; 2014 (http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/phep.aspx, accessed 20 November 2014).

³⁵ About rapid response service [website]. Ottawa: Canadian Agency for Drugs and Technologies in Health; 2014 (<http://www.cadth.ca/en/products/rapid-response/rapid-response-service>, accessed 20 November 2014).

³⁶ Rapid response service [website]. Toronto: Ontario HIV Treatment Network; 2014 (<http://www.ohtn.on.ca/rapid-response-service/>, accessed 20 November 2014).

³⁷ EVIPNet [website]. Geneva: World Health Organization; 2014 (<http://global.evipnet.org/>, accessed 20 November 2014).

³⁸ Evidence-informed Policy Network (EVIPNet) [website]. Copenhagen: WHO Regional Office for Europe; 2014 (<http://www.euro.who.int/en/data-and-evidence/evidence-informed-policy-making/evidence-informed-policy-network-evipnet> accessed 20 November 2014).

- the country level, led by country teams or knowledge translation platforms consisting of key national actors (including policy-makers, researchers and civil society representatives) to plan and implement knowledge translation activities and interventions;
- the regional level, at which country teams or knowledge translation platforms interact together to share experiences, lessons learnt and innovative approaches, supported by the regional EVIPNet Europe secretariat based at the WHO Regional Office for Europe in Copenhagen, Denmark;
- the global level, at which the global EVIPNet secretariat within WHO headquarters coordinates and supports the country and regional levels, and actively involves funders and other global stakeholders.

The mandate of the European Observatory on Health Systems and Policies is equally focused on supporting and promoting evidence-based health policy-making through comprehensive and rigorous analysis of the dynamics of health care systems in Europe.³⁹ It organizes policy dialogues –with its country clients and often in collaboration with one of its partners – on a particular policy question. It also led the Brokering knowledge and Research Information to support the Development and Governance of health systems in Europe (BRIDGE) project, which mapped existing initiatives, mechanisms and practices of knowledge brokering for health policy-making and identified their effectiveness in bridging the gap between policy-makers and the information and research generated.⁴⁰

Two other European mechanisms of note are Developing and Evaluating Communication Strategies to Support Informed Decisions and Practice Based on Evidence (DECIDE) and Fair Tests of Treatments. DECIDE is a five-year project (2011–2015) co-funded by the European Commission under the Seventh Framework Programme. Its aim is to improve the dissemination of evidence-based recommendations by developing and evaluating methods that address the targeted dissemination of guidelines.⁴¹ Fair Tests of Treatments is a five-year project (2013–2017) funded by the Norwegian Research Council. Its aim is to develop and evaluate resources to help improve the availability of reliable health information in mass media and to teach children how to assess claims about treatment effects in low-income countries.⁴²

In sub-Saharan Africa a prominent network of note is the Regional East African Community health (REACH) policy initiative project. This is an institutional mechanism or “knowledge broker” designed to link health researchers with policy-makers and other vital research-users. It connects these constituencies through shared and dynamic platforms that support, stimulate and harmonize evidence-based and -informed policy-making processes in East Africa. REACH is the world’s first regional attempt at knowledge translation using knowledge brokers.⁴³

³⁹ European Observatory on Health Systems and Policies [website]. Copenhagen: WHO Regional Office for Europe; 2014 (<http://www.euro.who.int/en/about-us/partners/observatory>, accessed 20 November 2014).

⁴⁰ BRIDGE series: BRIDGE knowledge for health [website]. Copenhagen: WHO Regional Office for Europe; 2014 (<http://www.euro.who.int/en/about-us/partners/observatory/bridge-series>, accessed 20 November 2014).

⁴¹ DECIDE [website]. Dundee: DECIDE; 2014 (<http://www.decide-collaboration.eu/>, accessed 20 November 2014).

⁴² Fair tests of treatments. London: Testing Treatments Interactive; 2013 (accessed 20 November 2014).

⁴³ Regional East African community health (REACH) policy initiative project. Arusha: East African Community; 2014 (http://www.eac.int/health/index.php?option=com_content&id=96:regional-east-african-community-health-reach-policy-initiative-project&Itemid=125, accessed 20 November 2014).

Generation and sharing of evidence

A systematic review of 124 studies (case studies, interview studies and documentary analyses) of the factors that facilitate and inhibit the use of research in decision-making identified the following factors crucial to promoting the use of health system information.⁴⁴

- Personal interactions (contact, collaboration and relationships) between researchers and policy-makers throughout the research generation process are critical for fostering the use of research evidence in policy-making to increase trust, mutual respect and understanding. Four opportunities can be identified within the research cycle for interaction, communication and partnership:
 - determining the research questions and methodology
 - collecting data and developing tools
 - interpreting the findings
 - disseminating the research results.⁴⁵
- Timely publication of research findings in plain language and accessible formats and including a summary with clear recommendations increases the prospect that research will be used. High-quality research that policy-makers consider credible reinforces the willingness of stakeholders to apply research findings in their decision-making.
- Confirmation of current policy interests, alignment with policy needs and placement of research findings in the context of other sociocultural norms and values will also facilitate research use.
- Community pressure and client demand for research, as well as inclusion of effectiveness data in reporting to stakeholders, are additional factors that promote the use of research in policy and practice.

⁴⁴ Health policy-makers' perceptions of their use of evidence: a systematic review. *J Health Serv Res Policy*. 2002;7(4):239–244h.

⁴⁵ More about knowledge translation at CIHR. In: Canadian Institutes of Health Research [website]. Ottawa: Canadian Institutes of Health Research; 2005 (<http://www.cihr-irsc.gc.ca/e/39033.html>, accessed 17 December 2014).

Annex 1. Glossary of terminology used

<i>Term</i>	<i>Definition</i>
Module 1: preparing for HIS strategy design and planning	
Essential health indicator	One of a set of nationally defined indicators of priority health problems, essential public health services and essential resources: an important input to the HIS strategic planning process is the current list of national core health indicators monitored by the health sector and services
Essential public health service	A specific education, prevention, detection or case management service aimed at reducing one or more priority health problems
Health development strategy	A national strategy for reducing one or more priority health problems and developing its health services and support systems
Health system domains	A set of health system functions, principally types of service and resource management defined by the HMN Secretariat and Technical Advisory Group, of which 10 are defined as relevant for assessing the impact of inadequate HIS performance: stewardship and management; facility-based, community-based, diagnostic and environmental services; commodities supply chain; and human, financial, knowledge and information and infrastructure resources
HIS	Health information systems: systems providing information support to decision-making at all levels of the health system, which incorporate information generated by both population-based and institution-based data sources
HIS assessment	A process involving the response of a group consisting of representatives of all major health information stakeholders in a country to a series of questions about the current functionality and performance of various categories of health information and their use. The assessment is supported by a spreadsheet tool that facilitates entry and analysis of the group's responses in order to determine the average degree of performance or difficulty currently experienced across the categories and questions, in the opinion of the informant group
HIS assessment item or question	An individual item or question within an HIS assessment category pertaining to current functionality and performance, generally provided with an array of "rationales" reflecting the degree of functionality and performance against recognized standards
HIS component	A component of health information used in the HMN framework; the six main components are: resources, indicators, data sources, data management, information products and dissemination and use
HIS information category	Under each HIS component the HMN framework and assessment list a number of information categories; for example, under the data sources component, each individual data source is an information category
HIS problem	A defined problem statement derived from one or more low-scoring HIS assessment questions – some of which have quantified indicators – that becomes the subject of intervention design for HIS performance improvement
HIS problem indicator	A definitive measure, generally quantitative, of the extent of an HIS problem (note: not all HIS problems have indicators)
HIS roadmap	A detailed plan of the steps and products to be undertaken and produced in formulating the HIS strategy and plan

HMIS	Health management information system: a term used to describe institution-based data sources
HMN framework	A document produced by the HMN Secretariat presenting the basic principles and steps of HIS strategic planning
Indicators	A quantitative measure of the level and trend of a health problem, health determinants, service or support system performance (coverage, quality, client satisfaction), health resource availability, allocation and use; in relation to HIS and their components, indicators can be used to measure similar attributes including coverage (of reporting), quality (of data), timeliness, use, availability of required resources and the presence of constraints and underlying causes of poor performance and utilization of the HIS, including assessment scores
Key assessment items	A selection of assessment items felt to be critical and representative of entire HIS assessment categories, such that they should be addressed within the HIS strategy whether or not their HIS component is given priority
Priority health problem	A health problem given a priority for reduction and control by a government and its ministry of health
Priority HIS component	An HIS component given a priority for strategic improvement because of poor assessment results and other criteria
Module 2: HIS strategic planning	
Causal problem analysis	A process of identifying the underlying problems and constraints affecting an HIS component and contributing to the problems in that component, which helps the subgroups to generate ideas for HIS interventions
HIS implementation phasing	The whole set of HIS strategic interventions placed onto a timeline and into the sequence in which they will be implemented across the entire HIS strategy implementation period
HIS improvement objectives	A statement that defines in a quantifiable and time-limited manner the amount of performance improvement or problem reduction desired for an entire HIS component; objectives are usually defined by the indicators used in the associated HIS problem statement
HIS interventions	Ideas for reducing HIS problems and improving HIS component performance devised by the SWG for each priority HIS component to be addressed by the HIS strategy
HIS strategic plan	The overall set of strategic interventions defined to address the problems affecting all the priority HIS components, along with the implementation activities and resources required
HIS vision	A brief graphic and narrative description of the features and functionality desired from national HIS, their components and information categories at the end of the HIS strategy implementation period, usually covering several plan periods (10–12 years)
Ongoing HIS strengthening efforts	Activities currently under way or planned, which will have an impact on the performance and use of HIS and their various components and categories of information; a listing of such HIS strengthening efforts is produced early in the HIS strategic planning process in order to recognize those efforts and include them and their resources within the HIS strategy and plan
Underlying cause or constraint	A factor or constraint that contributes to performance problems within an HIS component

Module 3: detailed HIS planning and costing	
Detailed HIS intervention implementation plan	A time-phased set of activities, products and responsibilities that reflects the implementation work needed to implement the proposed strategic interventions
Detailed HIS strategy design	A process carried out by technical working groups assigned to each priority HIS component for devising the technical specifications and design of the various interventions being proposed to strengthen each component
HIS development costs	The costs of carrying out the development of strategic interventions, generally of a one-time nature, which as such could be met by the government's development budget or by donor support
HIS implementation milestone	An especially important implementation product that signals successful implementation of a sequence of activities
HIS implementation product	A specific product of an implementation activity that signals successful completion of the activity
HIS implementation responsible office	The office or officer that has assumed responsibility for implementing one or a set of HIS implementation activities
HIS monitoring and evaluation framework	Two tables of indicators that reflect the more important HIS functional problems, objectives for improvement, progress in implementation of the plan of activities, availability of critical resources and ultimately the level of priority HIS component performance – together they represent the levels and methods of HIS strategy monitoring and evaluation, including frequency and data sources
HIS routine costs	Costs incurred through routine operations of the HIS; i.e. tasks and services carried out on a routine basis: increases in routine costs (such as additional HIS staff salaries) resulting from the HIS strategy are estimated in the costing step
HIS strategic plan document	A document prepared through the HIS strategic planning process presenting the proposed strategic interventions, implementation plan and resource requirements for review and approval by the steering committee and policy-makers of ministries and departments associated with HIS improvement and by potential donors and technical cooperation agencies
HIS strategy costing	A detailed costing of the array of implementation activities, including the implications of strategy implementation for both development costs and routine service operational costs

Annex 2. Example table assessing national HIS resources: coordination, planning and policies

No.	Item	Highly adequate (3)	Adequate (2)	Present but inadequate (1)	Not at all adequate (0)	Total score
1.A.1	The country has up-to-date legislation providing the framework for health information covering the following specific components: vital registration; notifiable diseases; private sector data (including social insurance); confidentiality; and fundamental principles of official statistics	Legislation covering all aspects exists and is enforced	Legislation covering some aspects exists and is enforced	Legislation exists but is not enforced	There is no such legislation	
1.A.2	The country has up-to-date regulations and procedures for turning the fundamental principles of official statistics into good practices, and for ensuring the integrity of national statistics services (by ensuring professionalism, objectivity, transparency and adherence to ethical standards in the collection, processing and dissemination of health-related data)	Regulations and procedures exist and are fully implemented; integrity of national statistical services is regularly assessed	Regulations and procedures exist and are widely disseminated but no regular assessment is made of the integrity of the national services	Regulations and procedures exist but are not yet disseminated and implemented	No written regulations and procedures for ensuring the integrity of national statistical services exist	
1.A.3	A written HIS strategic plan is in active use, addressing all the major data sources described in the HMN Framework (census, civil registration, population surveys, individual records, service records and resource records) and it is implemented at the national level	A comprehensive HIS strategic plan exists and is implemented	A comprehensive strategic plan exists but the resources to implement it are not available	A strategic plan exists but is not used or does not emphasize integration	No written HIS strategic plan exists	
1.A.4	A representative and functioning national committee is in charge of HIS coordination	A functional national HIS committee exists	A functional national HIS committee exists but lacks resources	A national HIS committee exists but is not functional	No national HIS committee exists	
1.A.5	The national statistics office and ministry of health have established coordination mechanisms (e.g. task force on health statistics); this mechanism may be multisectoral	Mechanisms are fully operational, meet regularly and meet needs for coordination	Mechanisms exist but meet only occasionally on an ad hoc basis or the agenda is too full	Mechanisms exist in theory but are not operational	No mechanisms exist	
1.A.6	A routing system is in place for monitoring the performance of HIS and their various subsystems	A routing system exists and is used regularly	A routing system exists but is seldom used	A routing system exists but is never used	No routing system exists	
1.A.7	It is official policy to conduct regular meetings at health care facilities and health administration offices (e.g. at national, regional/provincial or district levels) to review information on the HIS and take action based upon such information	The policy exists and is being implemented	The policy exists but meetings are not regular	The policy exists but is not implemented	No policy exists	

Annex 3. Health system domains

It is intended that the HIS strategy should focus on enhancing the generation and use of information in support of health system functioning across defined domains of health system services and resources. Ten health system domains have been defined: these are intended to cover various types of data and information and are set out in the table below.

Health system domain	Processes	Archetypical users
Facility-based services	Patient registration Individual health record creation Registration of death Registration of birth Classification of diseases Classification of symptoms Classification of procedures Notification of reportable diseases Disease outbreak detection and reporting	Patient/guardian/parent Chief health officer Physician Nursing officer Community health worker Trained birth attendant Mother and child health worker District health manager Director of primary health care
Community-based services	Registration of death Registration of birth Registration of migration (in and out) Demographic surveillance Disease outbreak detection and reporting	Community health worker Community leader District medical officer National health manager
Diagnostic services	Collection and registration of specimens Determination of results Associating results with patients Notification of reportable diseases Classification of diseases Patient registration	Chief health officer Physician Nursing officer Surveillance officer Laboratory technician
Commodities supply chain	Central stock monitoring Facility stock monitoring National demand forecasting District demand forecasting Stock threshold alerting and notification Distribution and logistics management Service delivery monitoring Service delivery forecasting	Chief health officer Facility health manager District health manager District store manager Provincial health manager Pharmacist Central store manager District store manager
Human resources in health	Developing and maintaining a taxonomy of health workforce Recruitment, checking credentials and hiring of health workers Monitoring deployed workforce Reporting priorities for recruitment and training	National health manager National finance manager Provincial health manager District health manager Facility health manager

Environmental services	<p>Water quality and access mapping</p> <p>Sanitation resources and access mapping</p> <p>Mapping of environmental conditions and history of natural disasters and events</p> <p>Classification of monitoring procedures</p> <p>Routine environmental monitoring</p>	<p>Chief health officer</p> <p>Physician</p> <p>District health manager</p> <p>Provincial health manager</p> <p>National surveillance officer</p>
Stewardship and management	<p>Implementation of family of international classifications</p> <p>Providing access to health protocols and research</p> <p>Aggregation of routine data</p> <p>Linking of routine and population data</p> <p>Budget and expenditure reporting</p> <p>Analysis and representation of data</p> <p>Monitoring of urgent health events</p> <p>Disease outbreak detection and reporting</p> <p>MDG monitoring and evaluation reporting</p>	<p>Chief health officer</p> <p>Physician</p> <p>District medical officer</p> <p>Provincial medical officer</p> <p>Global monitoring and evaluation officer</p> <p>Community health worker</p>
Financial resources for health	<p>Collection of fees for patient services</p> <p>Health insurance enrolment</p> <p>Health services insurance settlement</p> <p>National and subnational budgeting</p> <p>National and subnational expenditure tracking</p> <p>National and subnational revenue tracking</p>	<p>Chief health officer</p> <p>District health manager</p> <p>Provincial health manager</p> <p>National health finance officer</p> <p>National treasury finance officer</p>
Knowledge and information resources	<p>Presentation of protocols for care delivery</p> <p>Provision of access to research and authoritative source materials</p> <p>Delivery of skills development course materials</p>	<p>Chief health officer</p> <p>Community health worker</p> <p>Physician</p> <p>National director of nursing</p> <p>National health manager</p> <p>Facility manager</p>
Infrastructure resources	<p>Physical assets inventory taking</p> <p>Existing asset replacement forecasting</p> <p>New asset investment forecasting</p> <p>Physical asset maintenance management</p>	<p>National health director</p> <p>Provincial health manager</p> <p>District health manager</p> <p>Facility manager</p>

Annex 4. Key HIS assessment items

The HMN Secretariat recognizes that the HIS assessment tool contains a large number of questions and items across the six categories of enquiry. It has therefore reviewed the entire set and identified those felt to address the most important HIS capacities in all countries. It is proposed that when these key items receive scores below the agreed cut-off value they should be identified in relation to their HIS component and become the subject of a problem statement, whether or not they fall within an HIS component whose average score is below the cut-off. This is to avoid missing crucial "hidden" aspects of low HIS functionality within an HIS component that is otherwise satisfactory. The current list of key HIS assessment items is shown below.

I. HIS resources

- I.A.1. The country has up-to-date legislation providing the framework for health information covering the following specific components: vital registration, notifiable diseases and private sector data including social insurance, confidentiality and fundamental principles of official statistics.
- I.A.5. The national statistics office and ministry of health have established coordination mechanisms (e.g. a task force on health statistics); this mechanism may be multisectoral.
- I.B.5. At subnational levels (e.g. regions/provinces, districts) there are designated full-time health information officer positions and they are filled.
- I.B.6. HIS capacity-building activities have taken place over the past year for HIS staff of the ministry of health (statistics, software and database maintenance and/or epidemiology) at national and subnational levels.
- I.C.3. Computers are available at the relevant offices at national, regional and district levels to permit rapid compilation of subnational data.
- I.C.4. A basic ICT infrastructure (telephones, Internet access, email) is in place at national, regional and district levels.

II. Indicators

- II.1. National minimum core indicators have been identified for national and subnational levels covering all categories of health indicators (determinants of health; health system inputs, outputs, outcomes; health status).
- II.5. Reporting on the minimum set of core indicators occurs on a regular basis.

III. Data sources

- III.A.1.1. Mortality questions were included in the last census:
 - questions to estimate child mortality – children ever born and children still alive;
 - questions to estimate adult mortality – household deaths in the past 12 (or 24) months, including sex of deceased and age at death.
- III.A.2.1. The country has adequate capacity to: (1) implement data collection; (2) process the data; and (3) analyse the data.
- III.B.1.2. Deaths are registered through civil registration (percentage coverage).
- III.B.2.1. The country has adequate capacity to: (1) implement data collection; (2) process the data; and (3) analyse the data from civil registration, sample registration system or demographic surveillance system.

- III.C.1.1. In the past five years a nationally representative survey has measured the percentage of the relevant population receiving key maternal and child health services (family planning, antenatal care, professionally attended deliveries, immunization).
- III.C.1.2. In the past five years a nationally representative survey has provided sufficiently precise and accurate estimates of infant and under-5 mortality.
- III.C.2.1. The country has adequate capacity to: (1) conduct household surveys (including sample design and fieldwork); (2) process the data; and (3) analyse the data.
- III.C.4.1. Meetings and a multiyear plan coordinate the timing, key variables measured and funding of nationally representative population-based surveys that measure health indicators.
- III.D.1.1. For each of the key epidemic-prone diseases (e.g. cholera, diarrhoea with blood, measles, meningitis, plague, viral haemorrhagic fevers, yellow fever, severe acute respiratory syndrome, bird flu) and diseases targeted for eradication/elimination (e.g. poliomyelitis, neonatal tetanus, leprosy) appropriate case definitions have been established and cases can be reported on the current reporting format.
- III.D.1.2. For health conditions of substantial public health importance other than in III.D.1.1 above (i.e. leading causes of morbidity, mortality and disability such as pneumonia and diarrhoea with dehydration in children less than 5 years of age, malaria, tuberculosis, HIV/AIDS, sexually transmitted diseases and NCDs), a surveillance strategy exists.
- III.D.2.1. The country has adequate capacity to: (1) diagnose and record cases of notifiable diseases; (2) report and transmit timely and complete data on these diseases; and (3) analyse and act upon the data for outbreak response and planning of public health interventions.
- III.D.2.3. Health facilities submit weekly or monthly surveillance reports on time to the district level (percentage coverage).
- III.D.2.6. Facility-retained patient medical records are used to support quality and continuity of care.
- III.E.1.2. There is a systematic approach to evaluating the quality of services provided by health facilities. This includes both: (a) systematic standardized supervision with reporting of findings to district and national levels; and (b) a health facility survey of all facilities or of a nationally representative sample at least once every five years.
- III.E.2.3. Mechanisms are in place at national and subnational levels for supervising and receiving feedback on information practices in the public sector.
- III.E.3.2. Districts or similar administrative units compile their own monthly and annual summary reports, disaggregated by health facility (percentage coverage).
- III.E.4.1. Vertical reporting systems (e.g., for tuberculosis or vaccination) communicate well with the general health service reporting system (percentage coverage).
- III.F.1.1. There is a national database/roster of public and private sector health facilities. Each health facility has been assigned a unique identifier code that permits data on facilities to be merged.
- III.F.5.1. A national human resources database tracks the number of health professionals by major professional category working in either the public or the private sector.

- III.F.7.1. Financial records are available on general government expenditure on health and its components (e.g. by ministry of health, other ministries, social security, regional and local governments and extrabudgetary entities) and on private expenditure on health and its components (e.g. household out-of-pocket expenditure, private health insurance, NGOs, firms and corporations).
- III.F.7.2. There is a system for tracking budgets and expenditure by all the financial agents listed above in III.F.7.1, disaggregated by subnational or district level.
- III.F.11.1. Each facility is required to report at least annually on the inventory and status of equipment and physical infrastructure (e.g. construction, maintenance, water supply, electricity and sewage system) in the public sector.
- III.F.11.2. Each facility is required to report at least quarterly on its level of supplies and commodities (e.g. drugs, vaccines, contraceptives, other supplies) in the public sector.

IV. Data management

- IV.1. A written set of procedures exists for data management, including data collection, storage, cleaning, quality control, analysis and presentation for target audiences; these are implemented throughout the country.
- IV.2. The HIS unit at the national level is running an integrated “data warehouse”, containing data from all data sources (both population-based and facility-based sources, including all key health programmes), and has a user-friendly reporting utility accessible to various user audiences.

V. Data quality

- V.A.1. Under-5 mortality (all causes): the data collection method used for estimates is published recently or to be published.
- V.B.1. Maternal mortality: the data collection method used for estimates is published recently or to be published.
- V.C.1. HIV prevalence: the data collection method used for estimates is published recently or to be published: (1) if a generalized epidemic; (2) if a concentrated epidemic.
- V.D.1. Measles vaccination coverage by 12 months of age can be estimated from routine administrative statistics submitted by at least 90% of immunizing health facilities. These statistics are systematically reviewed at each level for completeness and consistency and inconsistencies are investigated and corrected. To calculate coverage, reliable estimates of population are available.
- V.F.1. Tuberculosis treatment success rate under directly observed treatment, short-course (DOTS): source of data and method used for most recent data is published.
- V.H.1. Private expenditure on health per capita (household out-of-pocket, private health insurance, NGO, corporation): the data collection method used is published recently or to be published.
- V.I.1. Density of health workforce (total and by professional category) by 1000 population: routine administrative records are validated with findings from a regularly conducted health facility survey/ census, labour force survey or the national population census.
- V.J.1. Smoking prevalence (15 years and older): the data collection method used is published recently or to be published.

Dissemination and use

- VI.B.1. Integrated HIS summary reports including information on a minimum set of core indicators (including those used to measure progress towards achieving MDGs and those used by global health partnerships, if applicable) are distributed regularly to all relevant parties.
- VI.C.1. Health information (population health status, health system, risk factors) is demonstrably used in the planning process – e.g. for annual integrated development plans, medium-term expenditure frameworks, long-term strategic plans and annual health sector reviews.
- VI.D.1. HIS information is widely used by district and subnational management teams to set resource allocation in the annual budget processes.
- VI.D.2. HIS information is used to advocate equity and allocation of increased resources to disadvantaged groups and communities (e.g. by documenting their disease burden and poor access to services).
- VI.E.1. Managers at health administrative offices at all levels use health information for local health service delivery management, continuous monitoring and periodic evaluation.
- VI.E.2. Care providers at all levels (national, regional/provincial, district, hospital and health centre) use health information for health service delivery management, continuous monitoring and periodic evaluation.
- VI.E.3. Information on health risk factors is systematically used to advocate adoption of lower-risk behaviours by the general public as well as in targeted vulnerable groups.

Annex 5. Example table for the HIS assessment outcomes with low-scoring key assessment items and HIS component average scores identified

Health system domains (functions)															
HIS component (information category)	Component average score	Low-scoring key assessment item	Key item text	Stewardship and management	Services				Commodities supply chain	Resources				Rationale (quantification or explanation of the problem)	Problem statement (component and key assessment item)
					Facility-based	Community-based	Diagnostic	Environmental		Human	Financial	Knowledge and information	Infrastructure		
Resources	1.32	I.A.2													
Financial and human resources	1.65	I.B.5													
Infrastructure	1.5	I.C.4													
Indicators	2.16	II.A.5													
Data sources															
Census	0.9	II.A.1 II.A.2													
Civil registration	0.15	III.B.1.2 III.2.1													
Population surveys	2.27	III.C.2.1 III.C.4.1													
Health and disease records (individual)	1.35	III.D.1.1 III.D.2.1 III.D.2.6													
Service records	2	III.E.2.4 III.E.3.2													
Resource (administration) records	1.05	III.F.1.6/7													
Data management	1.92														
Information products															
Mortality	0.87	V.A.1.1													
Morbidity	0.66	V.A.5.1													
Health system	0.96	V.B.10.1 V.B.13.1													
Risk factors	0.48														

Annex 6. Example table of priority health problems and related health services (partly completed)

Priority health problem	Related essential health services	Health topic
Cardiovascular diseases	Health education (diet); hypertension monitoring and control; antismoking education	NCDs
Diabetes	Education, screening, case management	
Chronic respiratory diseases		
Cancers	Anti- smoking legislation and promotion; screening	
Mental health problems	School and community case detection	
Obesity		
HIV/AIDS	Education; condom use; preventing mother-to-child transmission; antiretroviral therapy; blood donation screening	Communicable diseases
Health problems of the elderly	Community care	
Sexually transmitted infections	Education on prevention; case detection; treatment; contact follow-up	
Injuries and accidents	Emergency transport; trauma management	
Tuberculosis	Case detection; DOTS; health education	
Hepatitis		
Influenza		
Measles, mumps and rubella		
Environmental health risks	Sanitation improvement and access to safe water	Other

Annex 7. Overview of current indicator sets in use by WHO, the European Commission and OECD

This overview of indicator sets currently in use in the WHO European Region is not exhaustive¹ and should be seen only as an illustration of the various data collections taking place and their overlap.

Indicator set	Organization	Underlying policy	Focus/content areas	Number of indicators	Monitoring framework/level of implementation	Notes
Health 2020 indicators ²	WHO Regional Office for Europe	Health 2020	Generic (burden of disease and risk factors; healthy people, well-being and determinants; processes, governance and health systems)	19 core (of which three are linked to two targets) and 16 additional indicators; indicators of objective well-being still to be developed	Regional Committee resolution EUR/RC63/R3 on indicators for Health 2020 targets	Indicators are linked to three priority areas and six voluntary targets. (Additional) indicators on objective well-being are still to be developed. The indicator set is aligned with the NCD Global Monitoring Framework; several Health 2020 indicators also overlap with the European Core Health Indicators shortlist (see below).
Indicators for the NCD Global Monitoring Framework ³	WHO headquarters	Global Action Plan for the Prevention and Control of NCDs 2013–2020	NCDs (mortality; risk factors; health system response)	25	Draft comprehensive global monitoring framework and targets for the prevention and control of NCDs	Indicators linked to nine voluntary global targets. There is some (deliberate) overlap between Health 2020 and this indicator set.

¹ The overview contains well known and commonly used demarcated indicator sets, but many such sets are in use and not all are included. Moreover, further data collections take place that cannot be linked directly to identifiable indicator sets, such as joint data collection on monetary and non-monetary health care statistics, Eurostat data collections under Regulation (EC) No 1338/2008 of the European Parliament and of the Council of 16 December 2008 on community statistics on public health and health and safety at work (e.g. on causes of death and the European Health Interview Survey 2014). Furthermore, several information systems containing health data/indicators exist, such as the EU Information System on Alcohol and Health and the European Health and EU Life Expectancy Information System. Finally, ongoing developments could result in new data collections and/or indicators, which also are not part of this overview. These include, for example, the European Cancer Information System, the European Research Infrastructure Consortia on Rare Diseases and Health Indicators and the Joint Assessment Framework in the area of health.

² Joint meeting of experts on targets and indicators for health and well-being in Health 2020. Copenhagen: WHO Regional Office for Europe; 2013 (<http://www.euro.who.int/en/health-topics/health-policy/health-2020-the-european-policy-for-health-and-well-being/publications/2013/joint-meeting-of-experts-on-targets-and-indicators-for-health-and-well-being-in-health-2020>, accessed 10 November 2014).

³ NCD Global Monitoring Framework [website]. Geneva: World Health Organization; 2014 (http://www.who.int/nmh/global_monitoring_framework/en/, accessed 10 November 2014).

Indicator set	Organization	Underlying policy	Focus/content areas	Number of indicators	Monitoring framework/ level of implementation	Notes
European health for all database ⁴	WHO Regional Office for Europe	Health for all	Generic (demographic and socioeconomic indicators; mortality-based indicators; morbidity, disability and hospital discharges; life styles; environment; health care resources, utilization and expenditure; maternal and child health)	-	Regular updates of the database via the WHO website	-
Environment and health information system (EHIS) ⁵	WHO Regional Office for Europe	Parma Declaration on Environment and Health regional priority goals (RPGs) ⁶	Environmental health	23	Regular updates of the database via the WHO website	RPG 1: ensuring public health by improving access to safe water and sanitation; RPG 2: addressing obesity and injuries through safe environments, physical activity and healthy diet; RPG 3: preventing disease through improved outdoor and indoor air quality; RPG 4: preventing disease arising from chemical, biological and physical environments.

⁴ European health for all database [online database]. Copenhagen: WHO Regional Office for Europe; 2014 (<http://www.euro.who.int/en/data-and-evidence/databases/european-health-for-all-database-hfa-db>, accessed 10 November 2014).

⁵ Environment and health information system (EHIS) [online database]. Copenhagen: WHO Regional Office for Europe; 2014 (<http://www.euro.who.int/en/data-and-evidence/environment-and-health-information-system-enhis-database>, accessed 10 November 2014).

⁶ Parma Declaration on Environment and Health. Copenhagen: WHO Regional Office for Europe; 2010 (<http://www.euro.who.int/en/health-topics/noncommunicable-diseases/cancer/publications/2010/parma-declaration-on-environment-and-health>, accessed 8 December 2014).

Indicator set	Organization	Underlying policy	Focus/content areas	Number of indicators	Monitoring framework/ level of implementation	Notes
Health care quality indicators (HCQI) ⁷	OECD	–	Health systems performance assessment	22	Annual updates, publication in the “Health at a glance” series; OECD Health Data (see below) and via the OECD website	Areas covered: care for chronic conditions; care for acute exacerbation of chronic conditions; patient safety; care for mental disorders; cancer care.
OECD health data ⁸	OECD	–	Generic (health status; nonmedical determinants of health; health care resources, utilization and quality indicators; demographic and economic references; health expenditure and financing)	About 300	Annual updates – majority of data publically available via the OECD website	It is difficult to determine the precise number of indicators as there are also many sub- and subsubindicators. Some data are only available for people with a (paid) subscription.
European core health indicators (ECHI) ⁹	European Commission Directorate General for Health and Consumer Affairs (DG Sanco)	–	Generic (demography and background variables; health status; health determinants; health care)	88	Indicators used in many EU Member States (see final report of the Joint Action for ECHIM ¹⁰) although reporting not mandatory; reporting by DG Sanco via the HEIDI data tool on its website	Indicators are divided into implementation, work-in-progress and development categories. There are 88 main indicators but several hundreds of suboperationalizations (e.g. disaggregation by sex and age groups).

⁷ Health care quality indicators [website]. Paris: Organisation for Economic Co-operation and Development; 2014 (<http://www.oecd.org/els/health-systems/health-care-quality-indicators.htm>, accessed 10 November 2014).

⁸ OECD health statistics 2014 [online database]. Paris: Organisation for Economic Co-operation and Development; 2014 (<http://www.oecd.org/els/health-systems/health-data.htm>, accessed 10 November 2014).

⁹ European core health indicators [website]. Brussels: European Commission; 2014 (http://ec.europa.eu/health/indicators/echi/index_en.htm, accessed 10 November 2014).

¹⁰ Part I: implementation of European Health Indicators – first years. Final report of the Joint Action for ECHIM. Helsinki: National Institute for Health and Welfare; 2012 (<http://www.echim.org/finalreport.html>, accessed 8 December 2014).

Indicator set	Organization	Underlying policy	Focus/content areas	Number of indicators	Monitoring framework/ level of implementation	Notes
EU social indicators ¹¹	Social Protection Committee (indicators subgroup), European Commission Directorate General for Employment, Social Affairs and Inclusion	Open method of coordination for social protection and inclusion	Social indicators (Europe 2020 poverty and social exclusion target; overarching portfolio; social inclusion; pensions; health care and long-term care)	Health and long-term care: 39	The list of indicators is continuously being improved as statistics, data collection and policy needs evolve. EU social indicators are used in various contexts, as outlined on the European Commission website	–
Five key epidemiological indicators on drug addiction ¹²	European Monitoring Centre for Drugs and Drug Addiction (EMCDDA)	EU Action Plan on Drugs 2005–2008	Drug addiction	5	Indicators underpin EMCDDA reporting on trends and developments in the EU drug situation	The “five key indicators” in fact seem to be overarching areas of interest rather than indicators. Each contains a large number of subindicators.
Key indicators for alcohol consumption and alcohol-related harm ¹³	European Commission Committee on Alcohol Data, Indicators and Definitions	EU Alcohol Strategy	Alcohol consumption and alcohol-related harm	3 key indicators; 10 indicators linked to priority areas	Not clear from Commission website	–

¹¹ EU social indicators [website]. Brussels: European Commission; 2014 (<http://ec.europa.eu/social/main.jsp?catId=756&langId=en>, accessed 10 November 2014).

¹² The EMCDDA's five key epidemiological indicators [website]. Lisbon: European Monitoring Centre for Drugs and Drug Addiction; 2014 (<http://www.emcdda.europa.eu/activities/key-indicators>, accessed 10 November 2014).

¹³ Committee on Alcohol Data, Indicators and Definitions [website]. Brussels: European Commission; 2014 (http://ec.europa.eu/health/indicators/committees/index_en.htm,

Annex 8. Checklists of documents for use during modules 2 and 3 of phase 2

HIS strategic planning checklist

- Current national health development policies, goals, strategies, objectives, targets and political/societal values (usually available from the current medium-term national health development plan or strategy)
- Priority health problems (for which national reduction objectives have been set)
- Essential health services (for which national targets have been set)
- Current key health indicators
- Current HIS development efforts and external support
- Recent HIS development strategies and plans

Detailed HIS planning and costing checklist

- Current basic and in-service training of relevance to HIS
- A list of existing health and population databases, data warehouses, metadata dictionaries, their content and the organizations responsible for them
- A list of routine and periodic health publications and information promulgated in various media
- A list of current basic and in-service training of relevance to various aspects of data recording, analysis, reporting and use
- Unit, staffing and activity costs relevant to HIS development and operations

Checklist of additional information of use during both planning modules

- An inventory of current technical cooperation in health
- Existing health and population data processing centres
- Number and location of full-time HIS management and support staff by type
- Results of in-depth subsystem and data assessments, such as:
 - disease surveillance and outbreak response system
 - drug management system
 - human resource management system
 - public health care facility routine recording and reporting
 - service and programme data quality audits
 - results of health indicator data analysis and validity checks
 - essential service coverage surveys (e.g. immunization, maternal care); comparison with routine data
 - health sector joint programme reviews
 - special programme reviews (e.g. tuberculosis, malaria, HIV/AIDS, leprosy, goitre)
 - results of health and social surveys
 - facility and staffing surveys
 - results of geo-coding of facilities and service availability mapping
 - assessment of health service communications and Internet access
 - inventory of ICT access
 - lab system service and quality assessments
 - quality of care assessments at various levels
 - vehicle and equipment surveys

Annex 9. Example of scoring sheet with colour-coded scores

HIS component (information category)	Health system domains (functions)												Problem statement (component and key item)		
	Component average score	Low-scoring key items	Key item text	Stewardship and management	Facility-based	Community- based	Diagnostic	Environmental	Commodities supply chain	Human	Financial	Knowledge and Information		Infrastructure	Rationale (quantification of the problem)
Resources															
Coordination, planning and policies	1.32	1.A.2													
Financial and human resources	1.65														
Infrastructure	1.5														
Indicators	2.16														
Data sources															
Census	0.9														
Civil registration	0.15	III.B.1.2													
		III.B.2.4													
Population surveys	2.27	III.C.4.1													
Health and disease records (individual)	1.35														
Service records	2	III.E.1.1													
Resource (administration) records	1.05	III.F.2.2													
Data management	1.92	IV.4													
Information products															
Mortality	0.87														
Morbidity	0.66														
Health system	0.96														
Risk factors	0.48														

Annex 10. Examples of HIS strengthening activities

When compiling ongoing and planned HIS strengthening activities, it is suggested that any activity whose purpose is to develop new formats, data capture and flow procedures, databases, data analysis and reporting capability should be listed. HIS strengthening can be related to HIS components or information categories in support of health system domains. Examples of such HIS strengthening activities and products include:

- development of new or improved records, registers, reports and data flow procedures;
- development of new computer applications for data entry, database management, data analysis and report generation;
- design and conducting of new or strengthened training (basic and in-service) curricula and materials aimed at introducing;
- adding new or improving the performance of existing data management and use functions at various levels of the health system;
- development and implementation of new procedures for facilitating the use of existing data in support of planning and for ensuring valid data entry;
- monitoring and evaluation of health programmes and services;
- design and conducting of new surveys or survey modules, monitoring and evaluation processes and investigative procedures intended to be routinely or periodically applied in the future;
- any special data analysis effort and generation of information products using procedures that can be repeated in the future;
- revision and/or formulation of new legislation and regulations on health event notification and service reporting requirements;
- establishment of statistical and information coordinating committees.

HIS-related activities which are not considered “strengthening” in nature and should not be reported in this table include:

- routine maintenance and updating of existing computer applications;
- routine data entry, cleansing and analysis;
- conducting of routine in-service training in existing procedures and functions;
- conducting of existing periodic censuses and surveys for monitoring trends in population growth and distribution, community health and service performance trends;
- production of routine reports resulting from the analysis of routine service and survey data.

Annex 11. A note on constructing a vision of the future HIS

The following are examples of themes that could be addressed within an HIS vision statement to express the desired benefits and impact of the improved HIS to be achieved by the end of the development plan period.

- The improved generation and use of health and population information needed in the pursuit of the health development plan and in support of the priority national health programmes and service objectives and targets – including monitoring and evaluation of adherence to the values, principles and policies guiding the design and implementation of the national health development strategy – are present.
- The priority HIS components achieve improved functionality, with greater use being made of the specific information required.
- All communities, families and individuals benefit from better information for their own health and well-being, as well as better information from the services about their health and the care they are receiving.

It may be helpful to add a number of “characteristics” of the future HIS to the vision statement in order to provide specificity. For example, the future HIS will be characterized by:

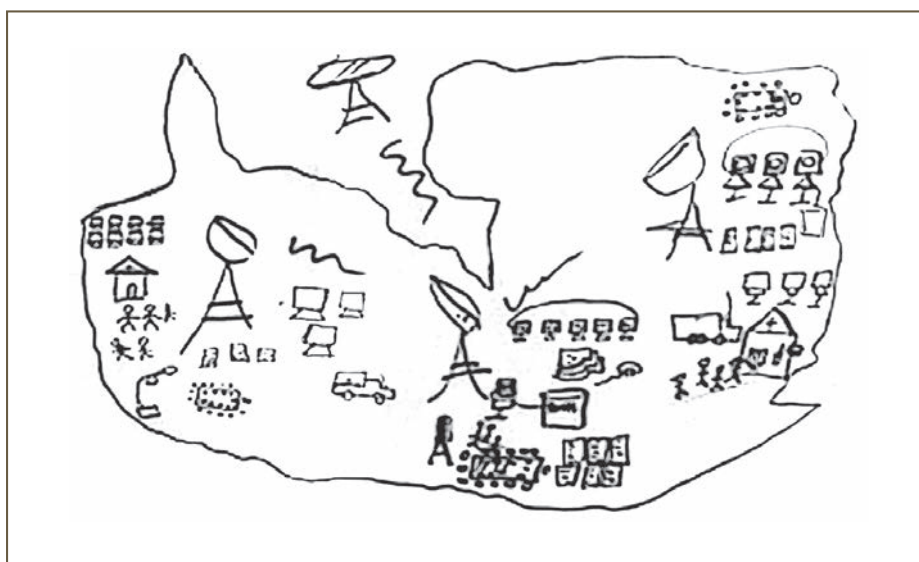
- strong political and policy support through strengthened legislation and regulations for important health information functions;
- a means and mechanism for integrating, storing and retrieving health-relevant data from a variety of sources;
- enhanced staff competence and capability in various skills needed for developing and maintaining the improved components;
- HIS performance achievement that complies with international standards, and as such will receive recognition and support among the public, policy-makers and the international health community;
- evidence-based decision-making made possible through the availability of high-quality sociodemographic, economic, morbidity, mortality and risk factor information and improved coordination of survey planning and implementation.

Annex 12. Example of vision graphics and set of elements

An effective and enjoyable method of generating ideas for the vision employs the use by subgroups of a graphic or mapping approach. Subgroups are assigned one or two priority HIS components for depicting elements of the overall HIS vision. After their review of the array of problems for their assigned component, they are facilitated in graphically displaying or mapping the characteristics they desire for their assigned component by the end of the development period.

Having produced their display, each subgroup lists the key elements it contains and presents both the graphic and the elements in plenary for comparison with the vision elements produced by other subgroups. Ultimately, a composite graphic is created on a computer with a list of the elements of each graphic chart. This product is then given to the core team to develop into a brief narrative description of the overall vision.

Example subgroup graphic



Key vision elements include:

- HIS services for the country and beyond its borders;
- district-level computerized local area network (LAN);
- health facility-level computerized LAN;
- an active health committee at the community level using HIS data to perform monitoring and evaluation function;
- meetings for monitoring and evaluation information sharing at all levels;
- a communications network that enables both voice and data transmission;
- a combination of paper-based forms and remote data entry within HIS;
- close coordination and collaboration with other ministries at the national level.

Annex 13. Example list of strengths, weaknesses, opportunities and threats

Strengths	Opportunities
<p>A functional monitoring and evaluation unit coordinates HIS activities.</p> <p>Demand is growing for health-related information from senior programme managers, policy-makers, donors, NGOs and other key players in the health sector, and from the public at large.</p> <p>Basic ICT infrastructure that facilitates the transmission and feedback of data from one level to the other is in place in most districts.</p> <p>Reporting of information is done frequently and on time from most units.</p> <p>A well defined system of data collection and reporting exists from the facility to the national level.</p> <p>A well defined national core indicator set exists and is used by almost all data sources.</p> <p>Information from the surveys conducted by the central statistical office is regularly used by those offices receiving it.</p> <p>Regular dissemination of routine information is done through reports to some stakeholders.</p> <p>An integrated disease surveillance and response system complements the HMIS on routine data.</p>	<p>Growing political and policy support for strengthening legislation enforcing the notification of infectious disease cases and outbreaks exists in both the public and private sectors.</p> <p>Efforts are currently under way to improve integration of vertical programme, administrative and management data.</p> <p>Potential donor support is available for capacity-building of health information officers, epidemiologists and statisticians through short- and long-term national and international courses.</p> <p>Continuing donor support for improved ICT infrastructure and maintenance is in place at the district level.</p> <p>Development of a national and subnational web-based data warehouse and repository is under consideration by policy-makers and potential donors.</p> <p>Improved advocacy of vital registration is now on the political agenda.</p>
Weaknesses	Threats
<p>Private health practitioner and facility reporting to HIS is poor.</p> <p>A training policy for health information officers is lacking at all levels.</p> <p>No long-term training in health information management available is in the country.</p> <p>No central repository or data warehouse is available for integrating HIS data sources.</p> <p>Maintenance of ICT equipment is insufficient.</p> <p>Level 2 and 3 hospital reporting is poor and not integrated into the main HMIS.</p> <p>Disaggregation of data by gender, socioeconomic status and geographical areas is inadequate.</p> <p>Coverage, analysis, dissemination and use of information from vital registration are poor.</p> <p>Frequent shortages of paper and forms for the recording and reporting systems occur at the facility level.</p>	<p>Turnover is high staff among critical HIS staff such as district health officers, statistical officers, demographers, epidemiologists and ICT specialists.</p> <p>Powerful donor-driven vertical programmes have their own reporting requirements and systems that retard integration of data through the routine district HIS.</p> <p>Some donors and lenders tend to avoid collaborating with the government-managed HIS strategy development effort.</p>

Annex 14. Examples of HIS strategy design principles and criteria

(These are derived from the HMN framework and principles – they should be reviewed and adapted by the HIS steering committee and core team)

- All efforts to strengthen the management of health services should focus on improving the pursuit and monitoring of the extent of coverage with essential health services to the entire population, with emphasis on reaching currently underserved population groups.
- Improvements to the assembly and maintenance of health data should focus on maximizing the monitoring and evaluation of service performance, both by individual clients about the services they receive and by the public at large about the preventive services they should receive and the extent to which this is achieved.
- To increase confidence in the completeness and reliability of the data at higher levels in the health system, the HIS strategy must pursue the purpose of enhancing data quality and use at the level at which the data are first generated in the service.
- The HIS strategy must aim at increasing access to health data and information by policy and decision-makers through improvement in data storage, retrieval, analysis and presentation.
- In support of decentralization of service management and actions at the district level, changes to data capture and flow procedures must ensure that the district health office has all service data assembled and available in one location, including data from basic health services and primary health care and from special disease and target group programmes.
- The data resulting from population census and sociodemographic surveys must be disaggregated and disseminated to the district level for use in monitoring service coverage and performance.
- International standards of data and statistics quality must be understood and pursued as a part of this strategy.
- Improved monitoring of MDGs and indicators is a priority for this HIS strategy.
- While training and capacity-building are often popular interventions for strengthening HIS components and information, care must be taken to ensure that the need, basis and material for such capacity-building exists before these activities are planned and carried out. This normally requires that revised and new systems, procedures and formats are developed and tested before staff training and capacity-building is designed and conducted.
- Staff capacity-building need not all be carried out through traditional basic and in-service training. Processes of learning-by-doing are often more effective and efficient and less disruptive to services.

Annex 15. Consolidated HIS standard and possible strategic interventions

This is a consolidation of the main ideas presented for each of the categories of information and components from the HMN framework. For more information on these topics, refer to the HMN framework document.¹

1. Ideas for strengthening the national population census

- 1.1. The standard should be a decennial census that provides information on population and socioeconomic characteristics by small geographical area, conducted in line with United Nations Department of Economic and Social Affairs standards. Such a system should produce:
 - population data by small areas with population projections;
 - mortality data if there is no vital registration – child and adult mortality estimates;
 - data on specific priority areas for the country – e.g. disability, access to improved water supply and sanitation.
- 1.2. Possible strategic actions include:
 - preparation for the next round of censuses and determination of health-related content as appropriate;
 - appropriate analysis dissemination and use of the most recent census;
 - provision of annual projections of population size and distribution to the health sector;
 - enabling public access to data, including geographical information.
- 1.3. Additional questions to consider include the following.
 - Were any major planning decisions poorly informed because of limitations in the last national census?
 - Is increased capacity needed over the next 10 years in:
 - data collection?
 - data processing?
 - data analysis?
 - Should questions on recent deaths be added to the questionnaire, including maternal deaths?
 - Is quality assurance through re-interviewing needed?

2. Ideas related to vital registration

- 2.1. The standard should be a properly functioning system with high coverage that does not systematically under- or over-represent particular population subgroups. Such a system should produce:
 - numbers of births and perinatal events;
 - population sizes;
 - numbers of deaths by age and sex;
 - causes of death, classified according to standard set of medical criteria.
- 2.2. Possible strategic actions include:
 - study of current practices (civil registration, vital statistics systems, medical certification processes);

¹ HMN framework and standards for country health information systems, second edition. Geneva: World Health Organization; 2008 (<http://www.who.int/healthmetrics/documents/framework/en/>, accessed 10 December 2014).

- creation of an enabling environment (policies, regulations, procedures and formats) to register births and deaths;
- improving analytical methods for evaluating and adjusting data from vital registration;
- actively promoting and supporting sample vital registration or building on existing civil registration, expanding coverage and supporting vital statistics systems.

2.3. Additional questions to consider include the following.

- Were any major planning or other decisions poorly informed because of current limitations in the vital statistics system?
- Is there a need or plan for an in-depth assessment of civil registration and medical certification of causes of death?
- Is increased capacity needed to:
 - register vital events?
 - process the data?
 - analyse the data?
- Is there a need to establish demographic surveillance sites or a sample registration system?

3. Ideas related to population-based surveys

3.1. The standard should be a regular well integrated country demand-driven survey programme, part of national HIS that generate high-quality information on population, health, risk factors and health service coverage that is internationally comparable.

3.2. Possible strategic actions include:

- development of an integrated master plan of surveys to be conducted over the next 10 years;
- efforts to generate high-quality health and socioeconomic information on a regular basis;
- efforts to integrate and co-analyse survey results with other reliable data sources;
- applying internationally accepted standards for conducting surveys in regard to ethical issues, design and implementation, quality assessment, analysis and dissemination;
- fostering and employing local surveys (by communities, civil administration and local health staff) as needed and appropriate.

3.3. Additional questions to consider include the following.

- Were any major planning or other decisions poorly informed because of current limitations in household and other population surveys?
- What routine and new data are expected from large-scale surveys already planned for the coming years?
- Are coordination mechanisms for planning, overseeing and utilizing the data from surveys available and functioning adequately to ensure maximum benefit is derived from the surveys?
- Is additional funding and technical expertise needed for future surveys?
- Is additional capacity needed to improve the overall survey programme in terms of planning, implementing, processing, analysing, disseminating and using the results of the planned surveys?
- Are special purpose surveys or survey modules needed to establish important baseline data?

4. Ideas related to disease and health surveillance systems

4.1. The standards should be:

- disease and health surveillance systems that include the functions of identification and notification of suspected cases of notifiable diseases and health risks according to standard case definitions, which are applicable with the diagnostic capabilities available in the local area (with support from patient and specimen referral sites);
- analysis of threshold levels being exceeded;
- case and outbreak investigation according to standard protocols;
- confirmation of cases and outbreaks and initiation of required control action, followed by the preparation of required reports.

Specific functionality includes:

- disease surveillance that rapidly detects health events and trends, identifies outbreaks, enables rapid investigation and control response and documents the outcomes;
- chronic disease surveillance (such as HIV and tuberculosis) that provides information on prevalence trends through special surveillance methods (sentinel sites), special prevalence surveys or other efforts to collect high-quality data;
- systems to compile cause of death and morbidity information, including cancer registries that are an integral part of the HIS.

4.2. Possible strategic actions include:

- assessing the performance of the current disease surveillance system and practices and developing a plan for improvement of the system and its procedures;
- updating case definitions for appropriate application within the diagnostic abilities of the service and referral facilities;
- developing national communications infrastructure for rapid surveillance notifications and response;
- strengthening human (public and private) capacity to support the surveillance system properly;
- enhancing the links and partnerships between the public and private providers for notification, investigation and outbreak control activities;
- development of district-level surveillance procedures and data management for efficient notification data entry, trend monitoring, threshold detection and outbreak investigation;
- devising efficient outbreak investigation report formats and ensuring report completion and submission.

4.3. Additional questions to consider include the following.

- Were any major planning or other decisions poorly informed because of a lack of complete disease surveillance data?
- Do service staff need training in order to apply standard case definitions properly?
- Do local surveillance procedures and specially trained sentinel sites need to be developed?

5. Ideas related to service data recording and reporting systems

5.1. The standard should be a health service data system that comprises ongoing systematic collection (recording), review, extraction, analysis, interpretation and immediate use (at the recording level) of relevant health and service data focused on local response (decisions and performance

improvement), followed by tabulation and compilation of selected data for required reports.

Specific capabilities include:

- facility-based health records producing sound, locally relevant data that is used first for the monitoring and management of local health services;
- for a selected number of indicators, service facilities producing data for national statistics on health trends, and service utilization and coverage;
- collection of such data in a standardized and systematic manner that enables comparison between facilities and regions and over time;
- routinely recorded and reported data that need periodic audits and quality control.

5.2. Possible strategic actions include:

- strengthening links among health and disease records (routine service registers and reports, death registration and surveillance systems);
- developing or facilitating districts in developing a minimum set of health indicators for subnational monitoring (district- and facility-level indicators and trends for health problems, service performance and operational constraints of local relevance and for reporting to higher levels);
- developing and applying learning-by-doing processes that engage facility and district managers and staff in carrying out routine service management functions such as performance assessments, annual planning and periodic focused problem-solving using routine and survey data;
- developing and implementing clear data collection (recording), reporting and data transfer formats and procedures, and quality control mechanisms;
- scaling up of HIV/AIDS treatment and follow-up assisted by an individual patient procedure-oriented record (one-disease electronic medical record application) where appropriate;
- improvement of quality and outcomes of hospital patient management and treatment through the electronic medical records applications, where applicable.

5.3. Additional questions to consider include the following.

- Were any major planning or other decisions poorly informed because of current limitations in health services data and statistics?
- Do guiding procedures and formats for recording and reporting need development or improvement?
- Do service staff need training in order to apply case definitions, maintain patient records and facility registers and prepare reports?
- Do service managers and staff need capacity-building in order to use existing routine data better to monitor their unit's performance, recognizing performance problems and devising local solutions?
- Is there a need to strengthen meetings and group processes for the routine review of service data, indicators and trends?
- Are assessments and methods needed to monitor and strengthen the quality (completeness and validity) of routine data?

6. Administrative systems and records

- 6.1. The standards should be health accounts that provide information on the amount of financial resources being allocated and used for health. Such accounts should be structured by sources of finance that include the public and private sectors (such as government tax revenue, insurance schemes, international support, the private for profit sector, household expenditure and similar), by health

functions or programme areas, by major health problems and by type of health providers.

Additional functionality includes:

- maintenance of up-to-date databases of all facilities (with geo-coordinates), human resources and key services;
- maintenance of a database managing the procurement, storage, distribution and consumption of the medicines and commodities supply;
- maintenance of an up-to-date database of equipment, assets, infrastructure and transport (also called a logistics system).

6.2. Possible strategic actions include:

- assessing current availability of financial data and its usability to determine programme and unit service costs;
- development of a database of financial disbursements from the national level to districts and programmes;
- conducting a public health expenditure review;
- carrying out a national health accounts study;
- improving or developing a geographical information database containing facilities, human resources and key services at the district level.

6.3. Additional questions to consider include the following.

6.3.1. Financial management

- Were any major planning or other decisions poorly informed because of weak monitoring of health budgets and financial allocations and expenditure?
- Is there a national health accounts framework analysis or is one under consideration?
- Is there an organizational home for maintaining national health accounts?
- Are staff and technical support available or planned for?

6.3.2. Health workforce

- Is it possible to code and analyse occupational data from the next national census in order to account for and determine the geographical distribution of private sector and public sector practitioners and health workers of various types?
- Would it be useful to undertake a health facility census or service availability mapping, including both public and private facilities?
- Should a computerized database be established to track over time the numbers of various types of health professionals as they graduate each year from all training institutions in the country?

6.3.3. Drugs and commodities

- Has there recently been an assessment of the drug management system and the drug management information system?
- Is there linkage and comparison between drug utilization records and service consultation registers and reports?
- Do facility- and district-level drug inventories successfully integrate the inventory records of drugs received from different sources?

7. ICT

7.1. Questions to consider include the following.

- Were any major planning or other decisions poorly informed because of weak data management, fragmentation and old data coming from health service and surveillance sources?
- Is there need to better store data from a variety of sources within and outside the ministry of health in an integrated manner, such as an integrated “data warehouse”, or to strengthen existing “data warehouses” through better architecture, coding and by adding additional sources and types of data?
- If a new “data warehouse” is needed, what sources of data are envisioned, who should have access to the data, who should be responsible for maintaining the warehouse and are sources of the technical and financial support needed to design and set it up available?
- Are there other requirements for integrating or compiling data from diverse sources, such as from different special programmes that maintain their own reporting systems?
- Is there a need to create or improve common user interfaces and decision support systems such as “executive dashboards” that facilitate the access and use of synthesized data for monitoring and use for routine and periodic decision-making and planning?
- Is there a need to standardize data elements and their definitions through a “metadata dictionary”?
- Is it possible to prioritize needs for improved ICT in support of the priority needs being addressed by this HIS strategy?

8. Analysis, dissemination and use of health information

8.1. Questions to consider include the following.

- Were any major planning or other decisions poorly informed as a result of inadequate analysis, dissemination, interpretation and use of health statistics and information?
- Are strategies under consideration for enhancing the dissemination to and capacity of the following types of staff in order for them better to understand and use data and information at their levels for monitoring, performance assessment, problem-solving and planning? This includes:
 - managers and staff in health care facilities;
 - district health management teams;
 - municipality and district civil administration;
 - programme managers and policy-makers in the ministry of health and the central statistics office.
- Is it appropriate to consider new forms of analysis and dissemination in various formats, such as:
 - annual health or statistical reports;
 - periodic epidemiological newsletters;
 - news releases and articles for the media;
 - websites and listserves (a membership of a number of people who simultaneously send messages to all members of the group, discuss topics and share information);
 - email dispatches;
 - executive decision support mechanisms such as “health watch frameworks” and “executive dashboards”?

9. Coordination in the development of the HIS

9.1. Questions to consider include the following.

- Were any major planning or other decisions poorly informed as a result of poor coordination of various components or different sources of data?
- Are coordination bodies that can help insure necessary linkage and integration of data from different sources available, or do they need to be created or improved?
- Is there sufficient coordination between the ministry of health and the central statistics office?
- Is there effective coordination in the design, conduct and funding of household questionnaires, service evaluations and investigative research?
- Is there sufficient stakeholder involvement and oversight in the following types of activities:
 - design of enabling policy, regulations and procedures;
 - selection and definition of key health indicators;
 - review and redesign of service records, registers and reports;
 - design of the integrated data warehouse;
 - design and funding of surveys;
 - design of the questionnaire and plan of analysis for the national census;
 - design and generation of national and international reports compiled from data of different sources and programmes?
- Who will be involved in the development of the legal and policy framework for the development of the HIS?
- How will the review and further development of the set of key health indicators be managed and supported?
- How will problems of fragmentation and absent linkage across data and reporting systems be addressed, including the integration of data from special disease control programmes?
- How will the varying needs of the wide spectrum of information users be defined, including internal technical and administrative programme managers, politicians, health professionals, training and research institutions, the media, the public at large and the donor community?
- Where is the proper location and level for the leadership of these various types of coordination?

Annex 16. Examples of costing summaries

Summary of development and recurrent costs by priority HIS component

HIS function	Type of cost	
	Development	Recurrent
Leadership and governance	637 000	705 974
Public health and surveillance	455 620	84 400
Civil registration	357 716	68 750
Census and population surveys	31 680	74 200
Health workforce	409 359	–
Total	1 891 375	933 324

Costs by activity type

Activity type	Total
Dissemination	26 324
Other human resources	165 695
Short-term technical assistance	258 675
Supervision	668 942
Survey	50 871
Workshop/training	1 712 942
Grand total	2 883 449

Annex 17. A note on HIS strategy monitoring and evaluation

The following levels of monitoring and evaluation are proposed for consideration by the technical working groups, core team and SWG, beginning with the levels closest at hand:

- availability of the resources required for implementing and sustaining the HIS strategies;
- progress and problems in implementing the planned activities and achieving the stated milestones;
- completion, quality and timeliness of the products of the activities;
- success in achieving the objectives of each priority HIS function as measured with the defined indicators;
- progress in improving all HIS problem and component performance indicators;
- progress towards achieving the vision of the HIS development strategy.

The core team should be assigned responsibility for carrying out the monitoring and reporting required for the proposed indicators, with a regular schedule of reporting back to the SWG and steering committee. A possible schedule of such reporting is:

- resource, activity and product monitoring – quarterly;
- HIS component performance monitoring, plan reviews and updates and revised mobilization of resources based on progress and plan revision – annual or biannual;
- vision achievement – mid- and end-plan periods.

Annex 18. A note of guidance on preparing the HIS strategy and planning document

The style and content of such a plan will clearly have to follow the country's planning practice, addressing the information requirements of both government and donor endorsement and funding. Nevertheless, HMN recommends the following principles when drafting, finalizing and reviewing the document.

- The process of preparing the HIS strategy and planning document should be organized as a small group writing process and managed in order to complete the document over a short period of time, as with the other steps of the HIS strategy process. The time taken for the writing and its progress should be monitored closely to prevent delays in its preparation.
- Qualified, experienced technical writers should be drawn on to prepare the document, preferably from among the staff assigned to the core team and SWG, to ensure that they are already very familiar with the content of the strategy.
- Efforts should be made to keep the narrative portion of the document brief and clear: 12–15 pages, supplemented by a number of annexes that are mostly products of the planning modules and steps, is deemed sufficient to describe the strategy and plan.
- Within the recommended sections of the proposal, efforts should be made to highlight the following in the narrative text:
 - the nature of performance problems and their underlying causes within the priority HIS components;
 - the focus the strategy and its intervention plan is applying through interventions designed to have important benefits within the priority HIS components, with beneficial results expected to be seen within the health system in a relatively short period of time, largely measured in the extent to which data and information are used;
 - the gradual and progressive nature of the implementation effort planned, keeping in mind the finite amount of technical and financial capacity available for the strategy;
 - the opportunities and strengths the strategy is using;
 - the assumptions made with regard to achievement of the HIS improvement objectives and vision.
- Successive drafts of the document should be reviewed and commented on by selected members of the SWG before it is finalized and shared more formally with the steering committee and SWG.
- A series of meetings in groups and with specific offices needs to be scheduled and carried out to obtain reactions to the HIS strategy and suggestions for its improvement from the formal SWG and other offices and levels of the service not directly participating in the SWG. Important current and potential donors and providers of technical cooperation to HIS should also be included. Such meetings will require the core team to prepare brief presentations that summarize the strategy and its features, along with the assumptions of opportunities, strengths and risks and the costs of the effort.
- The last formal step of the strategy development process is for the HIS steering committee to review the document in discussion with core team and SWG and provide its opinions of and support to the strategy. It may be possible to begin early implementation of some strategies, while others should be further reviewed and possibly revised.
- A strategy to mobilize needed resources is required at this point. Donor-specific discussions and negotiations may be required in order to fit their policies and priorities within the strategy while avoiding distortion of national intentions.
- Early strategy implementation may proceed before all required resources are mobilized, and may include conducting certain additional in-depth assessments (such as of the disease surveillance system or the drug management information system).

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