Assessment of national health information systems

Matching services to new needs of health information

Toolkit

ABSTRACT

How can WHO get an in-depth knowledge of users' needs in health information, especially in Member States? What are the keys to more efficient national health information systems (NHIS)? Such challenges were discussed as part of a project on the assessment of national health information systems (NHIS), launched by the Health Information unit. Systematic reviews of NHIS should be conducted at regular intervals to respond to the rapidly-evolving needs of contemporary public health. This toolkit was prepared and pilot-tested in 2003-04 in five pilot countries, and has been made available to all Member States of the European Region as a support to assess and strengthen NHIS.

The guiding principles of the project are:

- exchange of experiences
- capacity building in countries
- empowerment of health professionals
- flexibility of methodology
- sustainability of the project in countries
- increased quality and appropriateness of data and information.

Keywords

CONTENTS

Introduction

Health information is essential to good governance. As such, the health information system has a central function in the health system. Decision-makers use information at facility level, district level and national level, in order to design and monitor policies, to evaluate the impact of interventions, and to chose budget priorities for the delivery of services. Advocacy groups, donors, researchers, and media reporters are also increasingly interested in accurate and reliable data on health issues. These different users may have conflicting needs.

The WHO Regional Office for Europe has prepared and pilot-tested tools which assess and strengthen national health information systems (NHIS). The Czech Republic, Denmark, Hungary, Poland and Romania participated in refining the methodology. These tools are now made available to all Member States. Eight additional countries included the project in their Biennial Collaborative Agreements (BCAs) for 2005-06: Armenia, Azerbaijan, Georgia, Montenegro, the Republic of Moldova, Serbia, the Slovak Republic, Tajikistan and Uzbekistan.

Understanding the system better will enable WHO and other intergovernmental agencies to identify countries' needs for support in health information, and to advise them on the best solutions to improve the quality and relevance of the data they produce.

The ultimate goal of this project is to help public health professionals on the one hand, and decision-makers on the other hand, to make better use of data, information and evidence in policy.

The objectives are:

1. To describe the NHIS, including the flow of data, the links between the different institutions dealing with health data and information, and the legislation in this area;
2. To define the current and potential users of health information and the means to disseminate health information in a meaningful way to them;
3. To identify gaps and problems (duplication, delays, etc.) in the production, validation, analysis, interpretation and/or dissemination phases, with attention to both the national and district levels;
4. To recommend solutions to strengthen the NHIS and to support their implementation, as well as to strengthen the network of public health institutions and decision-makers interested in health information.

The approach is based on building capacities in the country itself, by having a local team responsible for conducting the project in the national language, with WHO Regional Office for Europe's help and support. This should empower the local health professionals to implement appropriate changes. The exchange of experiences across participating countries (with case reports) is also a strong focus of the project. The process should be followed-up after the required strategic decisions on the national health information system have been made.

The expected steps are:
- An assessment of the NHIS through semi-structured interviews with key-informants from the regional and local levels.

- The production of a national report, as a synthesis of the information gathered during the interviews and through preliminary documentation searches.

- Feed-back to interviewees.

- The process should lead to recommendations for the improvement of the NHIS or its components.

- The implementation of the recommendations, with WHO support, and their follow up.

- An evaluation (i.e. new assessment): to maximize usefulness, the process should be repeated at regular intervals (about 10 years), retargeting NHIS objectives.

Methodology

Preliminary documentation

The project team should review documents at their disposal, pertaining to the main institutions/operators of the NHIS (mission, achievements and difficulties). Donor agencies which have projects or components of projects in health information should be included in the review.

A synthesis of the legislation regarding the collection, processing, controlling, analysis and dissemination of health-related data and information should be conducted: all major laws concerning general data collection on individuals to which the health system has to comply with, will be identified and summarized in lay language, as well as laws pertaining specifically to the health sector. Examples include:

- rules for reporting information which is central to the main public health functions
- general rules within which private entities and Government agencies may conduct health-related business
- equitable access: rules for agencies and individuals to access and use information
- issues of confidentiality, privacy and data security
- requirements for intellectual property protection if relevant.

This review helps to identify the main operators of the health information system, to describe some of the links between them, and to spot the strengths and weaknesses of the legal requirements. It contributes to the discussion with the key-informants about the application of the laws and missions in the reality.

Data and information flow chart: although the understanding of the data pathways will be refined by the interviews' results, a preliminary summary will help to comprehensively identify the key institutions and users active in the system.

The interviews

Key-informants are persons who participate in the collection, analysis and dissemination of health data and information. They should be able to identify the particularities of the (NHIS) and bring a concrete and specific experience on the functioning of the NHIS. They can be producers or receivers of the information. Many of them are bound to hold a key position in their institution, but not necessarily. For example, if general practitioners are major producers of information, they will be in a unique position to discuss data quality and appropriateness. National and local decision-makers in the health sector should also be invited, at the highest possible decision levels. The number of key informants should be around 20-30, depending on the timeframe available for the interviews, the diversity of the institutions, and the choice of methodology (individual vs. group interviews).

The following institutions or organizations are listed indicatively for the selection of key-informants:

a) within the health system (both public and private sectors):

  - Ministry of Health and their subordinated institutions with responsibilities in health information (e.g. Public Health Institutes, Offices for Health Statistics)
  - local public health authorities
  - Health Insurance Funds
  - health care providers such as hospitals, ambulatory units, general practitioners
  - health programme managers, also in preventive services and health promotion
  - professional associations in the field of health when appropriate.

b) outside the health system:

  - national statistical institutes
  - ministries holding or using information on health determinants (e.g. Welfare, Labour, Environment)
  - non-governmental organizations
  - Social Insurance Funds, such as Pension Funds, Disability Insurance, if relevant

- representatives of international institutions involved in health information projects (e.g. World Bank, OECD, EC).

The interview should be conducted in the national language when possible, as appropriate. Experience has shown that even when people were completely fluent in other languages, interviewees naturally express the subtleties of their work and the problems they encounter in the native/national language. The interview should not last more than 60 to 90 minutes and should take the format of a free conversation as much as possible.

Prior to the interview, the key-informants should receive a brief information (maximum 1 page) pertaining to the scope and purpose of the study, the main topics that the interview will cover, so that they come prepared (see proposal for a draft letter in the methodology package). However, they should not receive the interview guide as such.

The location of the interview will be negotiated between the interviewers and the key-informant. If time and local conditions allow, it may valorise the interviewee if we pay a visit to his/her institution, with the advantage of having additional documents at hand. In other situations, a neutral place can make him/her more comfortable.

An interview guide is provided, but flexibility is essential. The items and the way to ask questions must be adapted to the country's situation and to the particular interviewee. It is recommended to use it only as a checklist during the interviews, to make sure that all areas are covered, but the interviewer does not have to follow the exact order of questions. Open-ended wording will usually yield more information, but 'yes/no' -questions are also useful on some specific issues.

It is crucial that the principal interviewer remains the same through all the interviews, even if he/she can be assisted by a collaborator, in order to ensure consistency and reliability. He/she should make all possible efforts to remain neutral and refrain from prompting 'desirable' answers.

Group sessions can be organized in some cases, if it is anticipated that the group stimulation will allow more detailed answers by building upon each other's ideas. It has to be considered that some key-informants would not feel free to talk about the problems in the NHIS in front of colleagues or other institutions. More simply, if several colleagues from the same institutions are approached, they can be interviewed together so that they can complement each other's answers.

All efforts should be made to ensure a climate of trust and friendliness: keep the number of interviewers as low as possible, start the interview by ensuring the confidentiality of individual responses at all stages of the process (no individual quotations in the reports, no taping), describe the form of feed-back they will receive, provide examples of other countries where improvements are also desirable, avoid personalizing the faults of the system.

Depending on the time available for the preparation phase, requests for facts and details may be sent to interviewees, keeping opinions for the actual interview.

The following elements, with their strengths and weaknesses, should be covered by the spectrum of interviews:

- Legislation
- Coverage of the population and services
- Confidentiality issues
- Flow of data and information
- Dissemination and feedback
- Collaboration and coordination between institutions (national, regional and local level, across institutions at the same level)
- Level of complexity of the data collection system
- Application of quality criteria
- Budget (for the Health sector in general and for Health Information in particular), Human resources, if data available
- See also the report template for more details.

The national project team

The team consists as a minimum of two persons: the Project Coordinator, who may or not be the main interviewer and an assistant-interviewer. The assistant will complement with additional questions, write down the responses and double-check them afterwards; he/she may take over the interview in unexpected occasions. If someone else than the Project Coordinator will write the report, this person should attend most of the interviews in the position of the assistant-interviewer. (If a WHO representative is present, a translator will usually be necessary, and he/she may be the assistant-interviewer.)

The Project Coordinator

His/her position should be high enough to ensure credibility towards the Ministry of Health and the various stakeholders, while remaining 'on the users' side' (i.e. a professional who uses data). He/she should come from an institution which is itself recognized, in order to ensure ownership in the follow-up phase. His/her profile is a health professional who possess leadership capacities and has an in-depth knowledge of (a) the national health information system; (b) the network of key-persons in the relevant institutions; (c) how decision-makers are using data and evidence-based information, and who are the stakeholders. For international connects, he/she should have a working knowledge of English, French, German or Russian (the official WHO languages in European Region). If he/she is the principal interviewer, he/she should have strong communication skills. His/her tasks are to:

- set up the team
- identify and contact key-informants to be interviewed and coordinate the exercise at the national level
- prepare and read background documents, including a list of data sources and their content, as well as a comprehensive review of the legislation regarding the health-related data and information, that will serve to generate the health information flow chart
- adapt the methodology to the country situation and check the translation of the interview guide and other project documents
- supervise/write the final national report.

1. If the assessment is performed in collaboration with WHO, the project coordinator liaises with WHO Regional Office for Europe, and communicates regularly on the advancement of the work. Where established, the WHO country office should be contacted at early stages of the project, as it can provide support in accessing high level officials, translating documents, liaising with the Office in Copenhagen and with other health information projects in the country, and/or helping in the interviews.

Project team members

They should be public health professionals, well informed of the Health Information System, preferably working themselves with data or having an experience in public health reporting. Their tasks are to:

- assist the Project Coordinator in all the above tasks, and actively participate in all stages
- organize the interviews: invitation letters for the key-informants, practical arrangements (meeting rooms, refreshments, transport and accommodation), professional oral and written translation if necessary.

The types of data to investigate

1. Vital statistics
   - Demographical statistics
   - Cause-of death statistics
   - Census
2. Epidemiological surveillance
   - Communicable diseases
   - Non-communicable diseases, such as cardiovascular diseases, diabetes, and cancer
   - Environmental health
   - Occupational health

3. Health interview surveys/Health examination surveys
   - Determinants of health and wellbeing
   - Lifestyles
   - Living conditions
4. Health services
   - Coverage and use of primary health care
   - Coverage and use of hospital services and institutionalised care
   - Health promotion and prevention programmes
5. Health expenditure/accounting
6. Health resources
   - Primary health care and preventive services (GPs)
   - Hospital services
   - Health personnel
7. International data and information sources (incl. WHO).

All methods of data collection should be investigated, such as disease registries, health and health-related surveys, ad hoc studies, hospital discharge data, insurance data, health observatories, etc. Some may not belong to the health sector.

Preparation phase for the assessment

These issues should be clarified before the interviews and latest during the interviews process.

Overall strengths and weaknesses of the NHIS (this section for both professionals and decision-makers)	*Make sure to describe the strengths and successes as well!*

1. Legislation, including confidentiality issues
2. Clarification of coverage of health care services by different programmes (private sector, geographical districts, special population groups such as Roma, Armed Forces, etc.)
3. Topics documented by current data collection
  a) Vital statistics
    ▪ Demographical statistics
    ▪ Cause of death statistics
    ▪ Census, if applicable
  b) Epidemiological surveillance
    ▪ Communicable diseases
    ▪ Non-communicable diseases, such as cancer, cardiovascular diseases, diabetes, etc.
    ▪ Environmental health
    ▪ Occupational health
  c) Health interview surveys or health examination surveys
    ▪ Lifestyle-related questions
    ▪ Information on diseases, conditions and functional capacity not covered by routine statistics or registers
    ▪ Coverage and use of primary health care or hospital services
    ▪ Effectiveness of interventions
    ▪ Health promotion and prevention programmes
  d) Health expenditure/accounting
  e) Health resources
    ▪ Primary health care and preventive services (general practitioners)
    ▪ Hospital services
    ▪ Health personnel
 	
4. Flow of data and information. Collaboration and coordination between institutions (also between national and local level)
    ▪ Ministry of Health and advisers
    ▪ National or local statistical bodies
    ▪ Insurance funds
    ▪ Other ministries and advisers
    ▪ Public health institutes
    ▪ Health care providers
	gaps, balance between routine statistics and surveys

▪ Health care planners ▪ Prevention/Health promotion programme managers ▪ Media ▪ General public ▪ Others (specify) 5. Dissemination: timeliness, format, accessibility, complexity, costs 6. Budget and human resources: staffing, competences, retention of skilled professionals, if possible	users' satisfaction and needs; user costs

Interview guide for the assessment

Items can be skipped or added according to the type of interviewee or to clarify a particular point. General questions (column 1) should first be answered in a free format, then the prompt (if any, column 2) be provided to make sure that specific aspects are covered.

P = Professionals;   DM = Decision-makers

Description of the Institution		
1. Describe its main mission *It is informative to hear how the person herself describes the missions and compare with background documents*	The organization is ❑ governmental ❑ non governmental ❑ public ❑ private ❑ non-profit ❑ for profit	P + DM
Are you producer or user of data?		P + DM

List the data you produce and the databases you maintain
  a) Vital statistics
    ▪ Demographical statistics
    ▪ Cause of death statistics
    ▪ Census, if applicable
  b) Epidemiological surveillance
    ▪ Communicable diseases
    ▪ Non-communicable disease, such as cancer, cardiovascular diseases, diabetes, etc.
	For each, ask:
	a) Are they primary or secondary data?
	b) Routine or ad hoc data collection?
	c) What is the relevant population?
	d) At what level are the data collected? (coverage of statistics: a. national, b. local)
	e) Who are data providers? (hospitals, general practitioners, others)
		P

▪ Environmental health
    ▪ Occupational health
  c) Health interview surveys or health examination surveys
    ▪ Lifestyle-related questions
    ▪ Information on diseases, conditions, and functional capacity not covered by routine statistics or registers
    ▪ Coverage and use of primary health care or hospital services
    ▪ Effectiveness of interventions
    ▪ Health promotion and preventive programmes
  d) Health expenditure/accounting
  e) Health resources
    ▪ Primary health care and preventive services (general practitioners)
    ▪ Hospital services
    ▪ health personnel
	f) What is the level of disaggregation? (age groups, gender, area, socio-economic groups, income, other)
	g) At what interval is the data released?
	h) What are the grounds of the data collection? (Is it based on legislation, on demand, etc?)
	i) What technical supports do you use to collect, to exchange and store your data? (Through which means do you receive the data?)
		P

4. Do you have to pay to get the data	If yes, to which institutions, for which type of data or for which kind of processing or analysis	P + DM

5. Describe quality assurance and control procedures, harmonization mechanisms	Use of standard definitions, coding guidelines, validation of data and questionnaires/instruments, comparisons with other sources, etc	P
Analysis and interpretation		
6. To what extent do you interpret the raw data?	Statistical reporting, analysis of data, etc.	P
7. If you perform a specific processing of the data, do you aim for comprehensiveness of statistical reporting vs. focused message for targeted audience	For which type(s) of data (see list question 3)	P
Dissemination		
8. Do you transfer data or information to others?	a) To whom? b) Which periodicity? c) For a fee? d) At what level of disaggregation? (age groups, gender, area, socio-economic groups, income, other) e) Is it required by legislation or is it based on demand, etc.? f) Who is taking the initiative for dissemination: users or data collecting institutes?	P
9. Under which formats do you disseminate the data and information you produce? Describe each type and specify periodicity	❑ Internet ❑ floppy discs, CDs, DVDs ❑ brochures, leaflets ❑ reports ❑ press releases ❑ personal contacts by: e-mail, fax, regular mail or phone ❑ conferences ❑ others, specify: _____	P
10. What other audiences would you like to reach? What are the obstacles?		P
Users		
11. What are the main current users of your data and derived products at the local, national and international levels?	❑ Ministry of Health and advisers ❑ National or local statistical bodies ❑ Insurance Funds ❑ Other Ministries and advisers ❑ Public Health Institutes ❑ Health care providers	P

	☐ Health care planners ☐ Prevention/Health Promotion programme managers ☐ Media ☐ General public ☐ Others, specify: _____	P
12. Are your data used for the evaluation of programmes? Describe the types of programmes and how data is used		P + DM
13. Do you receive feedback from users of your data and information products? Do you seek one?	How?	P
Costs		
14. If you are user, do you have to pay to obtain useful data?	a) To which institutions? b) For which type of data	P + DM
15. If available, what are the estimated production costs of your data?	In US$ (or local currency later transferred to US$)	P
16. If available, what are the estimated dissemination costs?	In US$ (or local currency later transferred to US$)	P
Data received/used from other organizations		
17. List the international data and information sources you are using, and for which purposes	WHO HFA-DB, OECD, EUROSTAT, other	P + DM
Links with other institutions		
18. Describe the data flows which you are participating in?	Names of institutions, obstacles, strengths	P
19. What are the difficulties with other institutions?	Data compatibility, organizational difficulties, conflict of interest	P
Use in decision-making		
20. How are the data and information you produce linked to the monitoring of public health plans or programmes at the national or sub-national levels?	Keep the discussion at a concrete level	P + DM
21. During the last six months, have you been asked by political instances to prepare data/information to support their decision (policy, legislation, programme, intervention, etc.). *E.g. Parliament, Minister, Parliamentary commissions, local authorities, advocacy groups, political parties, etc.*	a) Who requested the data/information? b) Which type of data? c) Which deadline were you given? d) What was the final decision? e) How was the data actually used in that decision?	P

22. During the last 12 months, have you contacted political instances to influence decisions or raise an issue that you felt was important? *E.g. Parliament, Minister, Parliamentary commissions, local authorities, advocacy groups, political parties, etc*	a) Who did you contact? b) Why? On what issue? c) How successful was it? What was the outcome	P
23. Over the last six months, how many times did you use data and scientific facts to decide on a health issue?	a) Describe the most recent examples, which issues? b) What kind of data? c) Whom did you ask? d) How did you use it? d) Were you satisfied with what you received? (please elaborate)	DM
Overall strengths and weakness of the NHIS	*Make sure you don't forget to document the strengths and successes*	
24. Legislation	For each weakness, specify the corresponding recommendations	P + DM
25. Coverage of the population and services (private sector, geographical districts, special population groups such as Roma, Armed Forces, etc.)	For each weakness, specify the corresponding recommendations	P
26. Confidentiality issues	For each weakness, specify the corresponding recommendations	P
27. Flow of data and information	For each weakness, specify the corresponding recommendations	P
28. Dissemination and feedback	For each weakness, specify the corresponding recommendations	P + DM
29. Collaboration and coordination between institutions (national and district level, across institutions at the same level)	For each weakness, specify the corresponding recommendations	P + DM
30. Level of complexity of the data collection system	For each weakness, specify the corresponding recommendations (how to simplify)	P
31. Application of quality criteria	For each weakness, specify the corresponding recommendations	P
32. Budget (for the health sector in general and for health information in particular), human resources	For each weakness, specify the corresponding recommendations (Preferably prepare as background information the percent of total public expenditures on health spent for health information)	P + DM
33. What would really make a difference in the quality and availability of data?		P + DM
34. Potential role of WHO and WHO's health information products (HFA-DB, reports, etc)		P

Definitions

Accessibility	The property of being easily available and easy to understand by the intended audience. Procedures ensuring that authorized users are able to retrieve or obtain the data and the information products directly from its primary source, in particular through an electronic information service.
Availability	The fact that the information is there for the right person, in a useful format, and when it is needed.
Confidentiality	Procedures protecting individuals or institutions against misuse, ensuring that the information is accessible only to authorized users.
Data	The raw material, quantitative or qualitative, which is collected to describe the different health areas, using reliable and valid methods. Primary data are those obtained from the original data source, while secondary data refers to datasets derived from primary data.
Database	A shared collection of logically related data, designed to meet the information needs of multiple users.
Evidence	Findings from research and any other analytical information that forms a useful basis for decision-making in public health and health care.
Evidence-based approach	A systematic, accurate, consistent, and transparent way to find, create, harmonize, share and fill the gaps in information, which is useful for decision-making.
Health Information systems (HIS)	A dynamic and flexible infrastructure, active at the national or sub-national level, comprising the organization, personnel, and components for the collection, processing, storage, transmission, display, dissemination, and disposition of information from complementary sources for use, analysis, interpretation and sharing by all professional and lay users within and outside the health sector. The HIS is part of the health system.
Information	The result of the transformation of data into meaningful syntheses which are ready to be used.
Knowledge	The active linkage of information to a context, and its integration into thinking and practice.
Quality Assurance	A planned and systematic set of activities ensuring that data and information products, process and services, actually meet pre-defined and clearly-established criteria or standards for quality, including users' satisfaction.
Quality Control	Procedures measuring the conformity of both products and processes to quality requirements. They include the definition of acceptable limits, identify whether products and processes fall within those limits, and report accordingly. The correction of product failures is included in quality control.
Standards	A published document, which sets out technical or other specifications necessary to ensure that a product, a piece of data or a method (e.g. questionnaire) will consistently do the job intended to do (reliability of the data).

Sources and references:

WHO internal documents on Health Information and Evidence.

WHO Regional Office for the Western Pacific. Improving data quality. A guide for developing countries. Geneva, World Health Organization 2003

http://www.mh.state.oh.us/offices/oper/giglossary.html

http://www.nclis.gov/govt/nclisglo.pdf

http://www.hiquality.org.uk/glossary.htm

http://www.hhs.gov/reference/index.shtml

Guidelines for the national report template

The report should be no longer than 60 pages (about 20 000 words) including the figures. It should be written with the needs of the average reader in mind, who knows little about the country or has only basic knowledge about the NHIS. Valid English expressions and clear explanations of activities and functions are crucial. Avoid lengthy descriptions and organize the chapters as to avoid repetitions.

About 1/3 of the report is based on the preliminary review (documents and legislation), and 2/3 on the interviews. The emphasis should be on organizing, synthesizing and interpreting what was read and said. Going beyond a mere description of the system is important. A balance must be found between (a) being specific enough, with examples and a relative comprehensiveness of all possible data sources (do not forget surveys and ad hoc studies) and (b) sticking to a logical structure and providing general directions. It should be clear from the report what the users (policy-makers) do or do not find in the current NHIS.

Target audience for the report: national professionals and decision-makers (including at ministerial level); other countries which plan to implement the project; donors; international organizations (including WHO Headquarters); researchers and professionals internationally.

Report template

Title: Assessment of the National Health Information System in [country x]

Subtitle: Results of a participative evaluation conducted in [dates, ex: May 2004]

Abstract

150-200 word's summary for the WHO publication, explaining the type of project and what type of information the reader can expect to find in the report. Provide 'Mesh' indexed keywords (e.g. PUBLIC HEALTH – statistics, INFORMATION SYSTEMS, EVALUATION STUDIES, HEALTH CARE REFORM, HEALTH PLANNING, DELIVERY OF HEALTH CARE, NEEDS ASSESSMENT, COUNTRY NAME).

Authors and Institution

Contents

Use automatic option in Word to build the table of content.

Acknowledgements

Include all persons who have facilitated or contributed to the project, other than the authors. State each person's contribution.

Abbreviations

With corresponding name in English (and/or local language as appropriate)

Executive summary

(2-3 pages), should not repeat text; include a summary of the recommendations, as some readers will only read this part.

1. Introduction

Description of the WHO project and its objectives. Say how your country got involved (BCA or other mechanisms). Text from previous completed reports can be used and adapted.

2. Methods

Use the 'Methodology' document and describe adaptations made to the country's situation. Text from previous completed reports can be used and adapted. Comment on how people reacted to the interviews, what special processes that were applied.

3. The health care system in [*country*]

Describe the elements that are necessary for the reader to understand the health <u>information</u> components of the health system, with a brief historical perspective if appropriate.

4. The health information system (HIS)

Recent changes/reforms

Legislative framework

Synthesis of the review, with its overall strengths and weaknesses (list the laws in an annex, with a brief summary in lay language for each)

Main operators of the HIS

Presentation of the main 'actors'/institutions - their missions, data sources and topics covered, their links with other institutions - according to their position:

    a) inside the health sector
    b) outside the health sector
    c) international organizations and donors active in the area of health information

This core chapter should cover:

- the responsibilities at national and sub-national/local levels, who is collecting data/making decisions and who is responsible for dissemination/implementation
- the relationships between national and sub-national/local levels

Include a chart summarizing the links between these actors, the type of data their collect; insert other graphs and figures every time they help summarizing and understanding the links.

Data collection and quality assurance processes

Describe the main sources of data. In case important surveys have been conducted recently, even if they are irregular or one-time surveys, they should be mentioned. State the level of aggregation of the data, whether core data sets or indicators are constructed, the definitions and classifications used, the standardization procedures, the use of unique identifiers, as well as how data can be accessed, and delays until they become available. Specify the information technology available: overall adequacy, searching devices (data mining), support to the availability of data, etc. Insert graphs and figures every time they help summarizing and understanding the links.

- o Strengths
- o Weaknesses
- o Recommendations

Data analysis and production of information

Describe how, by whom and for which purposes the data are analysed and synthesized. Insert graphs and figures every time they help summarizing and understanding the links. Then provide:

- o Strengths
- o Weaknesses
- o Recommendations

Interpretation and dissemination

Describe how data and information are transformed into knowledge and how they reach the target audience. Public Health reporting: type of reports and dissemination strategies issued from the various data sources; evaluation of the system by producers and users of information (with special attention to decision-makers); users' satisfaction; steps and cooperation to improve the utilization of existing data. Insert graphs and figures every time they help summarizing and understanding the links. Then provide:

- o Strengths
- o Weaknesses
- o Recommendations

Management and use of evidence in decision-making

Overarching processes. Insert graphs and figures every time they help summarizing and understanding the links. Then provide:

- o Strengths
- o Weaknesses
- o Recommendations

5. Case report

Describe thoroughly one recent example where data and evidence were used (or not used!) by decision-makers, by using interview material. A "Handbook for evidence-based working and case study writing" is in preparation and should be available shortly in the unit of Evidence for Health Needs and Interventions.

6. Conclusions and overall recommendations

This is the highlight of the report, and will constitute the basis for follow-up meetings and NHIS reviews at national level. Therefore, great attention should be given to what you actually want to convey to those who will implement the changes. Recommendations should not be too technical (technicalities are described in the text of the report), but be linked to general principles to which everybody can relate. Try to cover all the domains of the HIS (chapters 4-7). Add proposals for the process of a NHIS review adapted to the country: working parties vs. one single institution; role of the Ministry of Health, other leadership possibilities in the government, who could support most efficiently, etc. Be comprehensive (max. 4 pages), to give opportunities for the country to make choices in due time. Regroup common topics, avoid repetitions.

Annexes

Annex 1: References

Annex 2: List of interviewees

Annex 3: List of laws and regulations pertaining to health information