# Contents

# Abbreviations

| | |
|---|---|
| ARICP | Acute Respiratory Infection Control Programme |
| BCG | Bacille-Calmette Guérin |
| CDSS | Communicable Disease Surveillance System |
| CHC | Commune Health Centre |
| DHC | District Health Centre |
| DHS | Department of Hospital Services |
| DOF | Department of Finance |
| DMCH | Department of Maternal and Child Health |
| DP | Department of Planning |
| DPT | Diphteria-Pertussis-Tetanus |
| DSS | Disease Surveillance System |
| EH | Environmental Health |
| EPI | Expanded Programme of Immunization |
| FPSF | Family Planning Service Facilities |
| H | Hospital |
| HACP | HIV/AIDS Control Programme |
| HMIS | Health Management Information Systems |
| MCH | Maternal and Child Health |
| MOE | Ministry of Education |
| MOH | Ministry of Health |
| NIN | National Institute of Nutrition |
| NMCP | National Malaria Control Programme |
| NSO | National Statistics Office |
| NTCP | National Tuberculosis Control Programme |
| OPV | Oral Polio Vaccine |
| ORS | Oral Rehydration Salts |
| PHC | Primary Health Centre |
| PHO | Provincial Health Office |
| PMC | Preventive Medical Centre |
| TT | Tetanus Toxoid |

The worksheets give the reader an idea of how to go through the different steps, or how to process the different issues in an organized and systematic manner. Sample entries for the worksheets are provided to demonstrate how they are filled out.

The last part of the Manual gives an example of a list of basic indicators that might be used in Ministry of Health programmes, together with the corresponding data sources, modes and frequency of data collection, as well as the lowest administrative level where the indicator is computed. While the reader can adopt some of these indicators for their use, the main objective of the example is to show how the set of indicators used by a country can be presented so that it will be easy for the staff of the Statistics Unit to monitor their status. Also provided at the end of the Manual is an example of a flow chart of the HMIS of hypothetical country X. As in the first example, the aim is to show not "what", but "how"; not to prescribe a model flowchart for the HMIS as such, but rather to demonstrate how the HMIS can be presented by means of a flow chart.

# 4 Defining data needs

## PRINCIPLES

Different administrative levels in the health system have different roles, and therefore have different data needs.

Not all data needs should be generated through the routine system of data collection. Data that are not frequently needed or are required only for certain subsets of the population can be generated through special studies and sample surveys.



## STEPS

(1) Define the different roles/functions of each level, for each of the major programmes. A common set-up is as follows:

| Administrative Level | Function |
|---|---|
| Village | Case finding; service delivery |
| District | Monitoring and supervision |
| Province | Programme planning; evaluation |
| National | Policy formulation |

(2) Identify the indicators needed by each level to perform its functions. Note that some levels, especially at higher administrative levels, need data coming from other ministries or departments related to the health sector.

(3) Determine the formula and identify the variables or data elements needed in order to compute the indicators.

Worksheet 6.1: **Identification of Entries for the Development of New Forms and the Preparation of an Instruction Manual**

**Name of Form:** EPI Form 1
**Level Accomplishing This Form:** ✓ Village ☐ District ☐ Province ☐ National

| Data Elements Needed | Categories (If Applicable) | Definition | Instructions for Data Collection and/or Report Generation |
|---|---|---|---|
| Number of 1-year-old children who are fully immunized | Fully immunized<br>Not fully immunized | A fully immunized child is one who has already completed the following immunizations by the time he/she is 1 year old: BCG, OPV3, DPT3 and measles | Review all the immunization registers/cards for all 1-year-old children in the service area of the Village Health Centre. All children who have completed their BCG, OPV, DPT and measles immunizations will be counted as fully immunized |
| | | | |

# 7 | Developing procedures for data processing

## PRINCIPLE

The way the HMIS data is processed should be consistent with the objectives for data collection and the plans for data analysis and utilization.

## STEPS



(1) Assess the advantages and disadvantages of manually processing the data compared to using computers, considering the following factors:
   - Cost
   - Availability of personnel with the proper background/level of technical expertise to run a computerized system; in particular the software skills of the staff at the lowest level where computers can be provided should be looked into
   - Availability of technical support in case of hardware breakdown

(2) If a computerized system is to be implemented, decide the lowest level where computers will be used to process data. Among the important considerations in choosing this level is the presence of staff trained in system maintenance.

(3) Define the specifications for software development, in consultation with different levels of data users. Among the important aspects to be decided are:
   - Summary Reports to be routinely generated
   - Data quality control mechanisms/checks to be incorporated within the software
   - Data analysis requirements of the data users

(4) Develop the software needed to process the data at each level where computers will be used, based on the required specifications. It may also be possible that the softwares designed to generate outputs similar to those of the HMIS have already been developed, requiring only minor modifications to customize it. In this situation, the resources needed to acquire and customize the software should be determined. A decision then needs to be made on whether to develop new software or acquire and modify an existing program.

(5) Pre-test the software, paying attention to:

- ➤ Identification of bugs
- ➤ Ability of software to generate the expected data
- ➤ Ability of staff to use it

(6) Develop and pre-test the User's Manual for the software.

(7) Design a training programme to train relevant staff on the use of the software.

## I S S U E S

(1) Capability of existing hardware, especially at the lower levels, to accommodate the software, as well as its ability to store all the data.

(2) Compatibility of the developed software with other existing software (both within and outside the Ministry of Health) that it might need to interface with in the future.

(3) Basic system maintenance procedures.

(4) Security system.

# 9 Pre-testing the system

## PRINCIPLE

The system should be pre-tested in conditions that reflect as much as possible the actual conditions prevailing during its implementation.

## STEPS

(1) Prepare the guidelines for pre-testing the system. This involves addressing the following questions:

(1.1) **Where?** Selection of the place(s) where the pre-testing will be conducted. There is a need to develop criteria for selecting the pre-testing sites. These can include technical factors like the level of expertise or qualifications of the staff in the area, or practical considerations like the proximity of the area, the provision/availability of infrastructure support, or how cooperative the staff are.

(1.2) **Who?** Who will participate in the pre-testing? It is important for the different types of data providers and data users to participate in the pre-testing.

(1.3) **What?** What are the specific objectives of the pre-testing? Specifically, what aspects of the HMIS will be pre-tested? What are the different activities to be undertaken to achieve these objectives?

(1.4) **How?** What modes and tools for data collection will be utilized to systematically collect the data required for an efficient pre-testing of the forms?

(1.5) **How long?** For how long will the pre-testing be conducted?

(2) Orient the staff involved in the pre-testing.

(2.1) Inform them on the objectives of and procedures for the pre-testing.

(2.2) Train the data users and data providers in the pre-test areas on the new system.

# References


Hurtubise, R. *Managing information systems: concepts and tools*. West Hartford, CT, Kumarian Press, 1984.

Lippeveld, T., et al, eds. *Design and implementation of health information systems.* Geneva. World Health Organization, 2000.

World Health Organization Regional Office for the Western Pacific. *Workshops on the assessment and development of national Health Information Systems (HMIS) and epidemiological surveillance.* Manila, Philippines. World Health Organization, 1986 (Unpublished document, (WP)HIN/ICP/HST/005-E).

World Health Organization Regional Office for the Western Pacific. *A selection of important health indicators.* Manila, Philippines. World Health Organization, 2000.

World Health Organization Regional Office for the Western Pacific. *Guidelines for the development of Health Management Information Systems.* Manila, Philippines. World Health Organization, 1993.