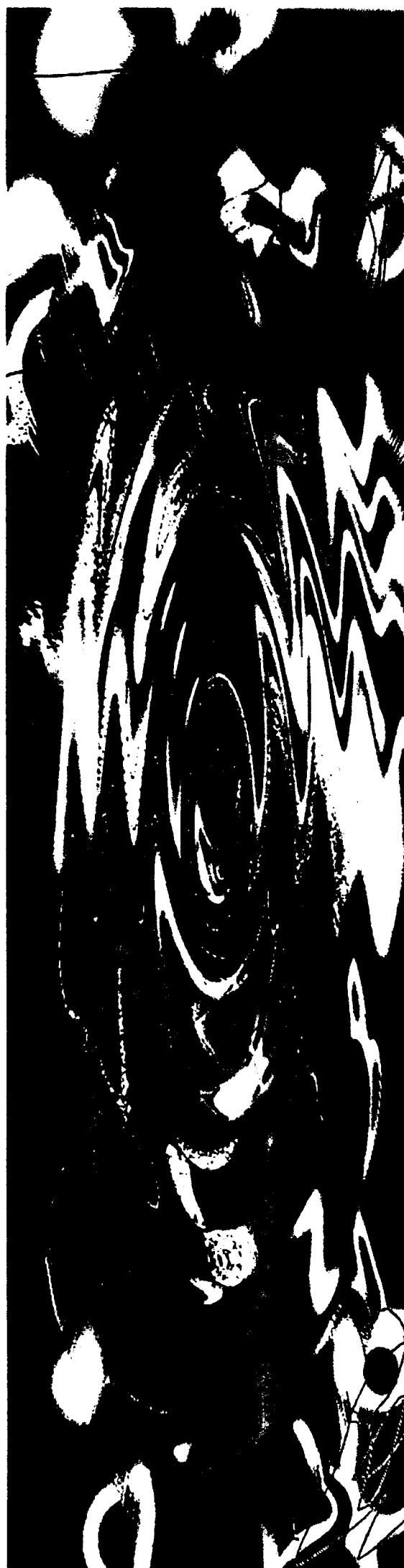


District Health Information System Guidelines

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&

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Preface

This is a worthwhile effort that complements the sterling work done by both the National Health Information System of South Africa (NHIS/SA) Committee and the District Health System Committee (DHSC). It is a logical development from the collaborative work between the line functions of our two Chief-Directorates, a collaboration whose earlier manifestation was the historic 1996 workshop that focused on the various pilot projects going on around the country.

These guidelines take into consideration ongoing pilot projects and various provincial efforts aimed at delivering one of the priority components on NHIS/SA, namely, Patient Management. What is refreshing about these guidelines is their community empowering approach, guided by indicators that will enable stakeholders to assess progress towards locally-set targets. Also worth noting is the fact that these indicators were developed from the Department of Health's *Health Goals and Indicators for the Year 2000*. It should be noted that the district is the fundamental building block of the National Health Information System of South Africa. Therefore, empowering the districts cannot help but empower NHIS/SA, whose work is primarily done through a collaborative approach involving the provinces.

Important as these guidelines may be, they are nothing more than just that - GUIDELINES. Their value can only be improved through their application. Given that there are no two districts that are exactly alike, it would be quite normal for various districts to utilise them in accordance with the material conditions that pertain to their socio-economic environments. It is through this practical application that the health districts that will actually give meaning to the key NHIS/SA principle that data must be analysed at its point of collection.

The excellent work of the Task Team that put together these guidelines must be commended.

Now is the time to put theory into practice.

Dr SH Khotu (Director)

and

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Directorate : National Health Information System

Department of Health

Pretoria

20 January 1998

INTRODUCTION

In this manual, District Health Information is presented in two parts :

1. Systems part covering what goes into building up a DHIS; and
2. Data and information section on detailed contents.

The manual is organised into eight chapters along these elements.

Part I. Systems.

1. Overview of the DHIS.
2. Setting it up.
3. Resources needed to set it up.

Part II. Data and information.

4. What needs to be collected and how.
5. Where it comes from.
6. How it is analysed.
7. How it flows.
8. How it is utilised.

Each chapter presents:

- What you need to know,
- What might be useful to know, and
- Some examples of the subject being presented.

CHAPTER 1

AN OVERVIEW OF WHY A DISTRICT-BASED HEALTH INFORMATION SYSTEM IS NEEDED

The concept of a district health information system

According to the Ministry of Health's White Paper, the implementation of health care will focus mainly on the delivery of primary health care in "health districts". This decentralised approach aims to unify health care delivery at the local level and means that each district would be managed by a **District Health Management Team (DHMT)**.

The aim of this document is to provide guidelines for designing and developing an information system that supports the information needs of the health district. This information system will be referred to as the **District Health and Management Information System (DHMIS)**. This is an integral part of NHIS/SA and these guidelines address but one part of a single national health information system.

The WHO defines the **district health system** as follows: A district health system based on Primary Health Care is a more or less *self-contained segment* of the national health system. It comprises first and foremost a *well-defined population*, containing 50 000 to 500 000 people, living within a clearly delineated administrative and geographical area, whether urban or rural. It includes *all institutions and individuals providing health care in the district*, whether governmental, social security, non-governmental, private or traditional. A district health system, therefore, consists of a large number of various interrelated parts that contribute to health in homes, schools, work places, and communities, through the health and other related sectors.

There are three distinct aspects of a district which would impact on its health information system. These are :

- the decentralisation of authority to a local management team,
- sectoral and intersectoral co-operation and
- community participation in the services.

The main difference between a *hospital system* and a *district health system* is that the responsibility of the district health management is not restricted to the hospital or the health facility. A district is a complex part of the real world while the hospital is a well defined area limited by the hospital walls. The main target of the district system is the district population and the various elements in the environment which affect their health and well being. The district primary health care system must encompass the entire population living in a geographical area or *district* while the hospital information system focuses on that part of the population entering their premises as patients in a patient database. However, the resources and expertise available for the

district hospital information system forms a significant resource base for the entire district.

Example: The Information System in the Alexandra Health Clinic

The difference between a district and a hospital information system can be demonstrated by a well known information system in the Alexandra health clinic.

The Alexandra Health Clinic is run by an NGO and situated in the Alexandra township outside Johannesburg. . It serves a community of +/-300 000 people and attends to about 600 patients a day. For many years a basic information system has been running using more than forty networked PCs installed at the clinic. The information system is based on lessons learned and software developed at the paediatric wards at the Cecilia Makiwane hospital in Mdantsane. The system contains modules for patient registration, pharmacy, x-ray and casualty.

However, this information system only focuses on what happens inside the gates of the clinic and cannot provide answers about the health status of the population of Alexandra.

To learn more about the situation in the district, it is first necessary to know the answers to several questions. Examples of these are :

- Where are the clinic patients coming from?
- Do they come from another area?
- What are the features of the population in the area?
- What is the age distribution?
- How many women are of child-bearing age?
- What about the people *not* attending the clinic?
- What is their health status?

Only by answering questions such as those above will it be possible to assess the health situation, set targets and evaluate to what extent targets are met. For example, the Alexandra clinic information system cannot provide information on the infant mortality rate in Alexandra because there are no records of number of infants or number of deaths apart from those which occurred *within the clinic*. The information system at the Alexandra health clinic would therefore not be adequate as a district information system. District management will need information of a very different kind to that which is required in the clinic.

Facility-based information systems and district health information systems are both needed. The facility-based information systems would feed into the district information systems. Within a hospital or facility information system, the patient record is central. When this system is computerised, the clinical patient folder will usually be paper-based, while basic patient data, such as dates of visits and an identifier for the folder (i.e. the patient number) will be computer-based.

From the point of view of the district, it is not important how the patient (and other) information is stored because only aggregated data is used. A district information system will therefore have to get data from different types of computer-based as well as paper-based systems and will have to be compatible with all of them.

Figures 1.1 to 1.4 show how the proposed district information model will run, with the district health management team using information from health programs, health services (government and non-government), community structures and other sources. The DHMT will also feed back information to health programmes, health services and the community.

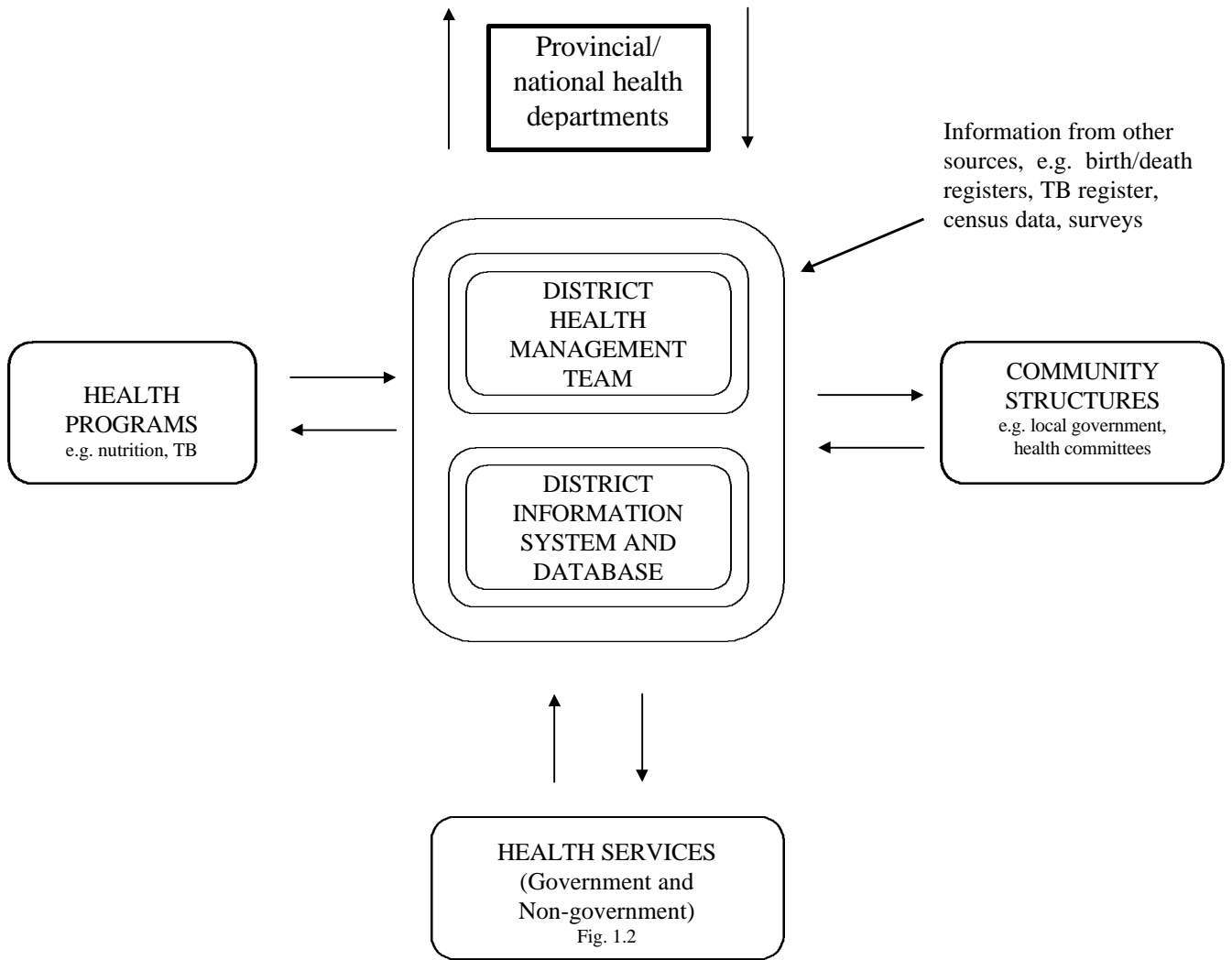


Figure 1.1. Proposed district information model with all components.

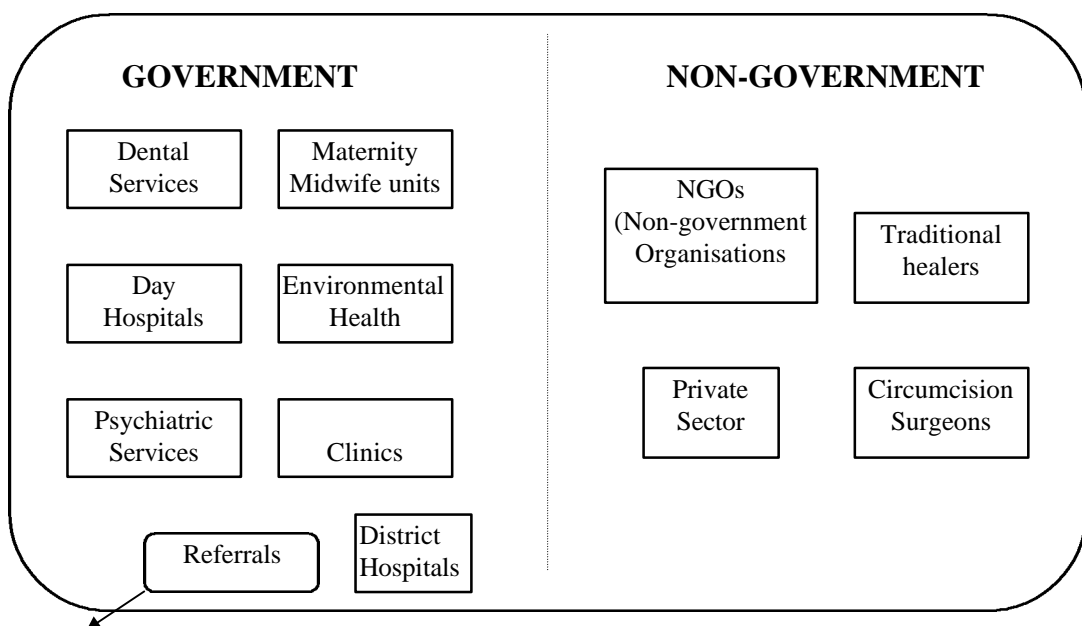


Figure 1.2. Health services (government and non-government)

Decentralisation of responsibility

Another important issue in considering a DHMIS is the decentralisation of responsibility to the district level. As there will be managerial responsibility at the district level, this will mean that the DHMT will require data and information at district level in order to perform their functions effectively.

Community participation

Community participation at district level is essential to the district health system. The DHMIS will play an important role in this as it will help make community input and feedback possible at the district level.

The need for a DHMIS

In summary, a DHMIS is needed for the following reasons :

- The government is committed to the implementation of a district health system based on primary health care.
- Any existing facility-based information systems would not meet the requirements for a DHMIS.
- Responsibility for primary health care will be decentralised to the district level.
- To support improved district health management and planning.
- To improve the health status of the community through having objective information on which to base decisions.

CHAPTER 2

SETTING UP A DHIS

Seven Steps To A District Health Information System

The district health information system (DHIS) can be a powerful tool to develop new district structures and to create awareness about the district health system among health workers and in the community. An effective district health management team (DHMT) needs a constant supply of reliable information to enable it to plan, implement and evaluate the tasks that are needed to run a district.

Unfortunately, due to the past fragmentation of services and centralisation of management, most districts do not have an information system that serves their management needs. Staff tend to spend valuable time collecting some relevant data for higher levels of the health system who seldom provide feedback. Set out below are a few simple steps towards empowering district teams to turn available data into locally useful information.

STEP 1 - Select pilot sites

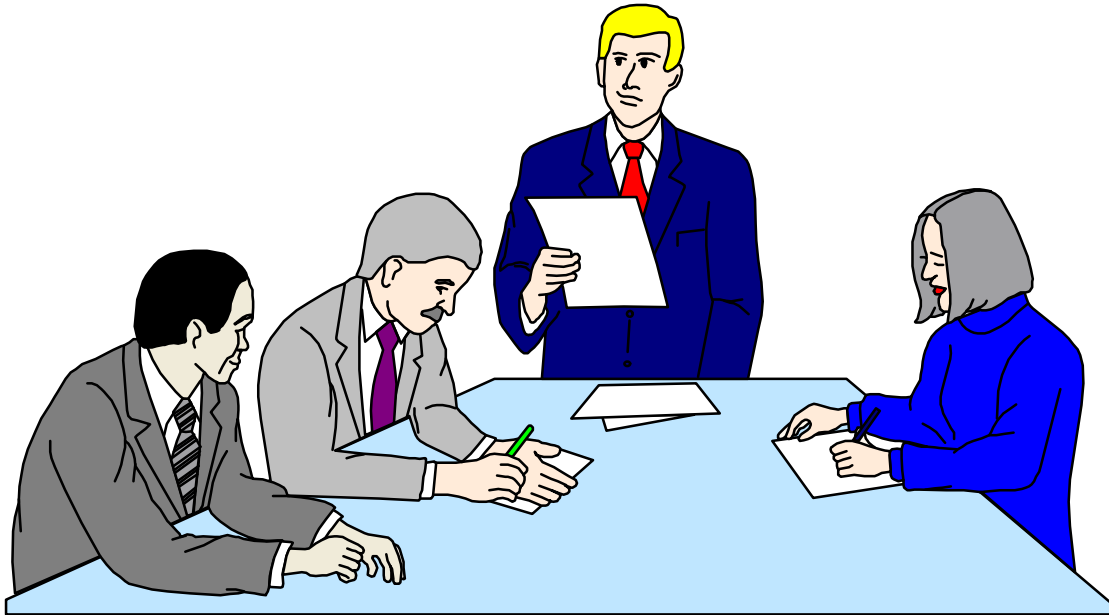
When you try to do everything everywhere, you can end up doing nothing anywhere. Experience shows that carefully selected pilot sites which test a new system and introduce new concepts, enable certain districts (or sub-districts) to take the lead and ensure that the results are achieved. This enables the ideas to spread rapidly to other (sub) districts.

An information system that supports immature district structures implies some uncertainty, and a degree of trial and error will always be necessary. Pilot sites enable managers to plan for uncertainty rather than being paralysed when things turn out to be more difficult than expected. One cannot know everything in advance. It will always be necessary to learn by local experience how to best set up the new systems and routines. The aim is to develop routines, guidelines, systems and ways to do things on a small, manageable scale and then to introduce them to other sites as soon as they are working effectively.

STEP 2 Form an information team

Developing a District Health Information System (DHIS) is not something that can be done alone. It is a participative process that needs a group of people who see the need for improved information use and who are committed to improving the quality and coverage of Primary Health Care (PHC) through

local action. This team should be a sub-committee of the DHMT and may start small. These are the 'prime movers' who initiate the process and motivate others to get going. A successful DHIS team should rapidly grow into a multidisciplinary organisation representing all health role-players including local government, provincial authorities, 'vertical' programs, NGOs, the private sector and the community. This team should include all levels of management and not just the 'top management' and heads of institutions - there need to be some workers to get things done!



A *district information officer* should be nominated/ appointed to run the district information centre, with a clear job description that will include co-ordination of all information handling, maintenance of the district database and updating of the district profile, as well as reporting and feedback of information.

In each facility and program, a person should be identified who is responsible for the collecting, collating and feedback of information. This *information co-ordinator* will report to and collaborate with the district information officer and will support staff in the calculation of indicators, drawing of graphs and the presentation of information at routine meetings.

STEP 3 - Do an information audit

The team needs a task to work on and the best thing for them to do is to do an information audit to find out exactly what data is being collected for what purpose in the district. This process gets all staff thinking about:

WHO collects data and for whom it is collected?

WHAT data they collect, on what forms? Is it useful locally?

WHEN data is collected and how often it is reported on and acted on?

WHERE data is sent - is it collated at a central point and analysed by the district before going to higher authorities?

WHY data is collected - is it for the collector or for the bosses in high places?

HOW data is transformed into useful information for local action?

This is the “situation analysis of information in the district” and enables one now to develop planning tools - objectives, targets and indicators.

One of the most important issues you will face is deciding on your information needs. This is not a simple process. It is important to make it as participative as possible. Here are two ways of doing this.

Brainstorming

This means sitting down with key people such as facility managers and program leaders in the district and discussing/workshopping what your information needs are. What normally comes out is based on people’s experience. It is useful in this setting to have appropriate categories with which to start discussion, e.g. workload, demography, personnel, TB, Maternal and Child Health, etc. rather than allowing the discussion to be completely open-ended. The advantage of this method is that it is relatively easy to do and quite quick. The disadvantages are that the system that comes out is more intuitive than rational. It does not adequately guard against unnecessarily excessive data collection demands or duplication. It also does not necessarily address the problems of existing information systems.

Looking at existing data collection practices

It is important to examine current data collection. A comprehensive list should be drawn up and organised. Key people should be asked to look at this list and to group the data into the following categories :

- Essential to know
- Nice to know
- Useless to know.

These people should be encouraged to consider what is missing from the current data collection. This process takes time but is more comprehensive. It will not necessarily affect current data collection. If the basis for current data collection is irrational, it may remain so. For example, duplication and uncoordinated data collection may not be highlighted by this method. Missing or excessive data may also not show up.

STEP 4 - Set Objectives, targets and indicators

Review goals, objectives, targets and indicators

This is the best method of determining information needs although it is the

most time-consuming. It is a systematic way of ensuring data collection is rational and is based on clear targets and indicators. Goals, objectives, targets and indicators are terms which mean different things to different people. They even mean different things in different settings. In this discussion, these terms mean the following things :

Goals

General statements of your aims or what you would like to achieve, e.g. to provide good preventative services.

Objectives

Specific statements of your goals, e.g. to achieve good immunisation coverage of the population served.

Targets

Your objectives (and goals) in number terms, e.g. to achieve 80% measles immunisation coverage of children under the age of 1 by the end of 1997.

Indicators

What you measure to see if you are reaching your target, e.g. (Number of measles immunisations given) *over (Number of children under 1)*

Each program in the district must be encouraged to define exactly what they are trying to achieve. These are the planning tools that give the direction to the district and enable progress to be measured. Long term objectives (goals) such as "improve the health of mothers and children" are usually set at national/policy level. The challenge at district level is to convert these woolly ideas into meaningful operational targets that are SMART - i.e. Specific, Measurable, Achievable, Relevant and Time-bound. All local role-players must be involved in this target-setting process and become part of the national plan to achieve these targets.

Indicators are measures used to see how far the programs have advanced towards achieving their targets. These can be quite difficult to develop as they need to be objective, valid, reliable, sensitive - the NHIS/SA office has developed a set that can act as guidelines for local teams, but do not be put off by their number and complexity. To start with, select only a few, simple indicators that your team feels are important locally. Once these are being effectively used, increase the number and start more complex analysis. It is however obligatory to maintain accurate records for notifiable diseases.

STEP 5 - Create district based information system and structures

New routines and structures for collecting, analysing, reporting and using information should be developed which are district oriented rather than

“vertical”. Facilities and programs should collate and report a minimum amount of aggregated data to the district information centre on a monthly basis. The district information centres will organise the data in the district database and produce and feed back a monthly district report.

By linking together all facilities and programs through routine reporting of aggregated data to the district information centre, and feedback of analysis and district summaries, a unified district will be developed. This district information system is easily made compatible with all past and future facility-based information systems, whether they are paper-based or computer-based.

STEP 6 - Develop staff skills

The “information team”, who will be the prime movers in driving the process, will probably initiate the first steps to developing a DHIS. Very soon they will need to train the *information co-ordinators* and this should be the prime task of the *district information officer*. Once data starts to be converted to locally useful information, staff will rapidly become interested and will want to know how to use information themselves.

Your district is probably already collecting a lot of data - what is needed is to empower your staff to identify that which is important to your facility managers and the district team - i.e. the data needed to make local decisions to improve coverage and quality of services. Start with simple analysis of existing data e.g. service coverage of immunisation or antenatal care; a profile of the most important outpatient diseases seen, or analysis of the nutritional status of children. The program selected is not important as long as it is seen as a local priority and provides staff with a better picture of health status or service delivery.



Identify the sources of data for the indicators and collect data for each health facility for the past year on a monthly basis. This will give staff the opportunity to examine the data for quality and identify any gaps. This training does not need to be sophisticated and does not need outsiders - the best information training is hands-on, person-to-person training during routine support, using data that has been collected locally and that will be used locally.

STEP 7 - The information cycle - the ongoing process of improving the information system and creating a district information culture

Once a system has started to convert data into information, this information needs to be used on a regular basis at meetings, displayed on walls for staff and the public, as well as disseminated to politicians and managers in health-related sectors. By being used, the information system is gradually improved through a cyclic process of learning. By learning through hands-on experiences, problems are identified, new needs are defined and new features are added. In the next planning cycle data will be criticised and improved. The analysis of data should be to the DHMT what a ward round is to hospital staff - a daily (or weekly) ritual aimed at improving service delivery, in which everyone participates and adds their perspective to solving problems.

These steps may be intimidating to those of us who are used to working in a centralised, top-down bureaucracy, but the important thing is to START, always remembering the ancient Chinese proverb: *A journey of a thousand miles starts with the first step.*

EXAMPLE A : The HISPP case study (applying the Seven Steps)

These steps have been developed based on the experiences of the Health Information Systems Pilot Project (HISPP). The initial situation analysis which led to the HISPP and the proposed stepwise guidelines are as follows: After the 1994 elections, the new provincial governments set up Strategic Management Teams to oversee the restructuring process. One of the task groups set by this team in the Western Cape dealt with the health information system in the province. Its investigation and assessment showed that the health information system was sorely in need of restructuring. One of its main recommendations was that a pilot project be set up to develop a district level health and management information system and this led the establishment of HISPP.

Two surveys of the health information systems in Atlantis (The Atlantis Pilot Project) and Mitchell's Plain were instrumental in creating the design and process approach to a district information system that is captured in the STEPs to be presented. The health information system in South Africa historically reflects the structure of the centralist and vertically organised health system. A cursory assessment showed it to be fragmented and inefficient. A large number of forms were used to collect large amount of data at the local level. In Atlantis, it was found that 172 forms were in use in two selected services. There was often duplication of data collection with slightly different definitions being used. A large amount of nursing time was being used (up to 40 %) for these data collection exercises. No use of information for management at local level was identified and personnel had little or no feedback from data sent to service management. The survey of information use in Mitchell's Plain showed similar results and in addition a poor understanding of why data was being collected. The survey in Mitchell's Plain also demonstrated the complexity of the seemingly chaotic and spaghetti-like ways of a large number of data reporting systems, i.e. information systems.

Appendix A describes in detail how the steps mentioned above were applied in the case of HISPP.

Example B : Eastern Cape case study.

In 1995 the Drakensberg Regional Council determined that there was an urgent need to modify the existing information system in order to make it relevant to their needs. A multidisciplinary team of workers and managers, representing all PHC providers (excluding the hospitals) set out to identify local information needs. From this, they were able to develop a series of goals, targets and indicators for the district health services. Based on these, a new computer-based clinic register and a local reporting form were developed. They also identified a set of graphs to be kept at the local level. Workers co-operated in defining all data to be collected and what analyses of these data were to be made.

Although the system has not been trouble-free, it has been working since July 1996. It has reduced the time spent on "stats" and has increased the involvement of workers in the collection and analysis of data. It has also encouraged different authorities in the district to work together, with health workers collaborating for the first time to develop and implement the system.

A patient-carried record system was also developed in this district. It was found that the number of records lost by patients was no more than the number of clinic-retained records lost due to misfiling, etc.

Data is used to analyse indicators at clinic level. The nurse at the clinic uses the data analysis to plan and monitor clinic services by monitoring indicators with graphs. If the clinic is given targets on immunisation, family planning, etc. (e.g. based on WHO standards), progress can be measured against these. The nurse also sends the data to the supervisor and receives feedback as to how the clinic compares to other clinics.

The experience in this district suggests that data collection (minimum data sets) should be limited to data which is useful for local planning, management, monitoring and evaluation of services. Provincial health authorities did not respond to a query as to why certain indicators had to be retained for this district. These indicators were then excluded from the minimum data set. This has led to a critical reconsideration of the use of data at provincial level.

Example C : Free State case study

A Routine Data system, including a minimum routine data set for Primary Health Care (PHC) was developed in the Free State as part of the PHC/INFO Project, starting in 1994. This was done in a partnership involving the Free State Department of Health, the Centre for Health Systems Research & Development and the Health Systems Trust.

The health service had many information-related problems - among these were basic shortcomings of the data (inappropriate, irrelevant, incomplete, inadequate), problems with data collection, inability and/or reluctance of health care managers to use data for planning and management purposes, and a demotivation on the part of nurses to collect accurate data.

The development of a new minimum routine data set for PHC would solve some of these problems. However, the problems throughout the health information system had to be addressed. A comprehensive information system for PHC would have to integrate aspects of community involvement, management training and health systems research with routine data, financial data and personnel data.

The PHC/INFO Project aimed at developing a sound and reliable database for the planning and management of PHC. As part of this development, continuous training and assessment would be required to ensure that the data remained relevant and useful. Health care workers and communities had to benefit from the new system.

What was needed was an on-line provincial framework and an easy way to get information in and out of the system. The Free State had the advantage that it was a Healthlink pilot area involving computers at 200 sites in a network to enhance communication between health workers and institutions.

This helped the development and application of a PHC information system. As a result, a central databank containing various databases for PHC planning and management is nearing completion. On-line communication networks have been implemented at 34 major health facilities.

Presently, routine data is recorded on ticksheets and then scanned into a computer where it is processed and stored. The feasibility of using computers in busy clinic settings is being investigated as a step towards a fully computerised patient data system. Different options of storing and accessing routine data must still be explored. Future plans include the provision of data from the databank to various "end-users" according to their specific needs (e.g. data for the ReHMIS survey).

It is estimated that the total cost of the development and implementation of the new health information system in the Free State presently amounts to R30 million, of which the major proportion came from the Province and the rest from donor funds.

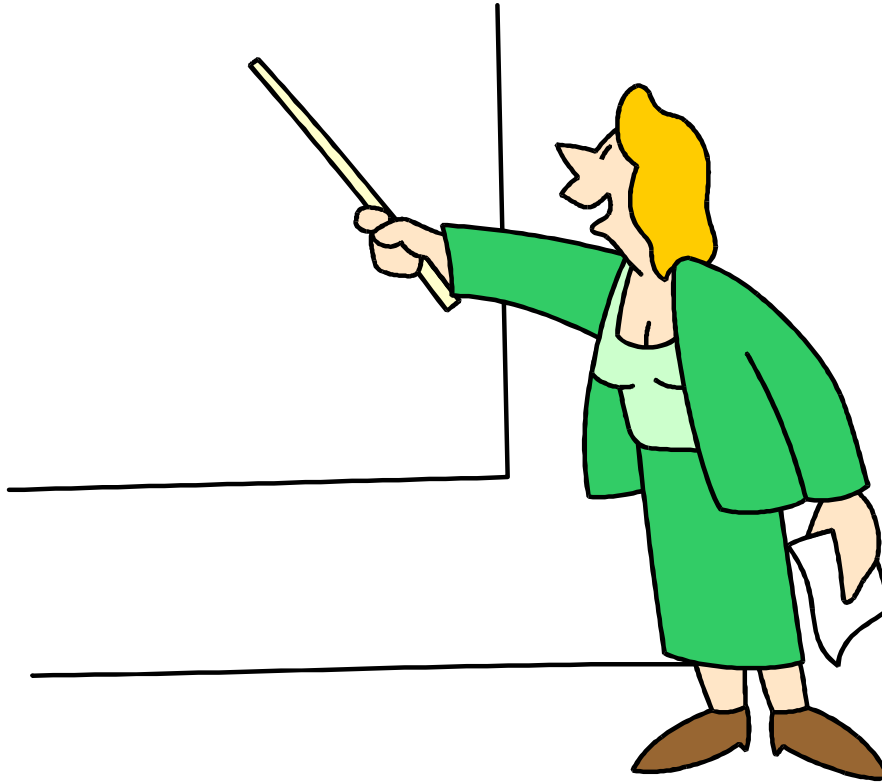
CHAPTER 3

RESOURCE REQUIREMENTS FOR THE DISTRICT HEALTH INFORMATION SYSTEM

HUMAN RESOURCES

General requirements

In principle, all health service personnel should value the collection and use of management information. Personnel at all levels of care will need training in data collection, analysis, interpretation and use. This will facilitate the collection of the data for services assessment and for self-assessment. Training will therefore be guided by a training curriculum that ensures transferability of skills.



The nature of the training should be appropriate to local needs and build on available skills. Traditional academic institutions will not be able to support all district-specific training needs. It may be advisable to explore other training mechanisms, such as the provincial in-house training unit, or to procure customised training from commercial or academic providers.

It is also important that personnel identified for informatics training should be retained and provided with an appropriate career path.

The resource requirements at district level arise from the expected district functions with respect to information management. The functions include :

- aggregation of data from all health service institutions in the district, environmental service data, and population-based or surveillance data
- collation and entry of this data into a district database
- interpretation of information
- training and technical support for hardware and software used
- database management
- design management of periodical surveys
- informed input into the regional management process.

Personnel who are expected to be part of the information management team at district level may include all or some of the following :

- district information officer
- data capture / data analysis clerks
- facility-based information co-ordinators or statistical officers
- an external facilitator / resource person may be needed to facilitate initial establishment of the system.

Finally, full participation of the clinical personnel and members of the district management team is necessary to make the district management information system a success.

Competencies and skills requirements

The health informatics knowledge, skills and attitudes required of the people that manage the information system are as follows :

District information officer

Basic knowledge

- health policy and systems
- planning, leadership and management
- ethics and confidentiality

Detailed knowledge

- health information systems management
- NHIS/SA policy and legislation related to health information
- data security
- coding, classification and quality assurance
- information analysis, presentation and dissemination

Skills

- presentation and communication
- change management, facilitation and training
- information query and data retrieval skills
- participatory information systems development
- technical information system skills
- accessing external data resources/information (e.g. map development)
- proactive ability to support management decision-making

Attitudes

- community orientation
- commitment to quality service provision
- advocacy for informed planning and decision-making
- respect for confidentiality of individual information and for freedom of access to organisational information
- respect and tolerance of cultural differences

Operational (at facilities) and administrative personnel

Knowledge

- basic knowledge of MIS objectives
- basic knowledge of local targets and indicators
- basic knowledge of process for converting data into useful information
- issues of privacy, security, availability and confidentiality of information

Skills

- collection, capture, collation, interpretation and presentation of data
- assess progress towards targets and make timely recommendations
- information sharing
- clerical skills

Attitudes

- ownership and responsibility for data collected
- ability to value and share information
- encouragement of feedback on information disseminated
- community orientation

In addition to the health information team, support from district management and other information resources in the district, such as academic institutions, is necessary to ensure utilisation of health information.

The necessary health management team should have competencies in :

- analysing information and utilising information as a planning tool
- basic computer skills
- report generation and presentation

External facilitator / resource person(s)

The initial development of a district health information system will in many cases need to be facilitated by someone with technical expertise who can be a resource person and who can drive the process.

Local capacity

Because there has been no tradition of decentralised management of health services in South Africa, there is currently very little managerial expertise at district or local level. This will make it difficult for people at local level initially to determine their information needs and to have the capacity to analyse and interpret data. There may have to be some dependency on external expertise. However, as district management takes off and capacity develops, this reliance on external expertise should be reduced.

INFRASTRUCTURE

Computer-based systems

Telephone line

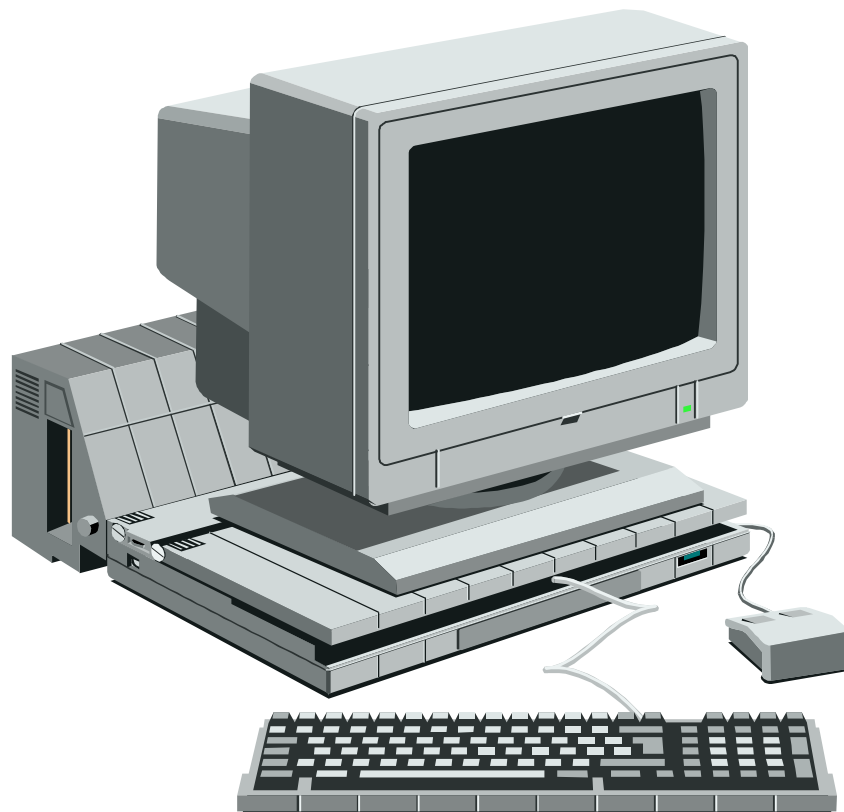
Electricity

Hardware : Pentium processor, 1GB Hard Disk

Laser printer

Scanner (optional?)

Modem



Software : Office Systems

ReHMIS

Healthlink

Remote Demanders Module (drug procurement)

GIS systems, e.g. Mapinfo, Epilinfo

Database software

Persal

FMS

A mechanism for electronic mail, e.g. Healthlink

Paper-based systems

- Patient register
- Mortality data
- Morbidity data
- Coverage statistics
- Utilisation rates
- Copy of patient records
- Notifiable disease records and registers
- Facilities registry
- Stocks registry
- Finance registry
- Equipment registry
- Transportation registry
- Communication registry
- Health human resource profile
- Health service profile
- Community profile including community resource profile
- (Approximate) Maps of catchment area



FINANCIAL RESOURCES

The financial resources are a very rough guide of annual expenses based on 1997 salary scales and equipment costs. The actual expenses will vary greatly from one district to another.

<i>Human resource costs</i>	For e.g. Assistant Director and Admin. Clerk Training expenses	R175 000
<i>Infrastructure</i>	Hardware :	R 10 000
	Software :	R 7 000
	Paper records :	R 5 000
	TOTAL :	R197 000

From the Free State case study

Expertise and support for the development and implementation of a computerised routine data system

Other provinces were concerned that they did not have the expertise and support that the Free State had in the development and application of information technology. They were advised to make use of available expertise and capacity locally, e.g. universities, technikons and NGOs to assist in this regard. "Reinvention of the wheel" must be prevented as far as possible by liaising with provinces where certain developments have already taken place and where, by implication, certain mistakes have already been made and certain lessons already been learnt.

CHAPTER 4

DATA TO BE COLLECTED (MINIMUM NATIONAL REQUIREMENTS)

What the National Department of Health expects from districts in terms of information.

The National DOH requires key information from districts and provinces in order to :

- plan new policies and changes to existing ones (e.g. is a cervical screening programme feasible in the next few years?);
- evaluate implementation of current policies (e.g. are the health services becoming more equitable?);
- monitor the health status of the population (e.g. look at mortality and selected morbidity rates);
- assist provinces and districts to manage health services.

This key information should be limited to information which can be reasonably easily collected and collated by 75% of districts in the country.

Based on the draft document, "Year 2000 Health Goals, Objectives and Indicators for South Africa" which is contained in the White Paper on the Transformation of the National Health System, the feasible, realistic core indicators obtainable at district level have been extracted. In addition, some requests and suggestions from some line departments have been added.

Notes of importance

- 1. The indicators required by the national and provincial health departments from the districts should not be regarded as permanent. They should be updated and revised as the need for more or different information arises.***
- 2. The indicators listed here are important for the national level and are primarily based on the Year 2000 indicators. Districts would want more detailed indicators for their own decision making, planning and evaluation.***
- 3. One person (or team of people) should be designated for having control of information flows in the district and all information should go via this person (or team).***
- 4. The indicators given below are each followed by a short note on how they could be gathered or calculated.***

These core information requirements or indicators are listed below :

Health resources

Health resources require an annual updated database with the following variables completed :

- Population of district
- Total staff complement analysed by professional category and by facility
- A list of all facilities including exact physical location, type of electricity and water supply, telephone number, number of planning units (e.g. examination room, hospital and maternity beds), number of theatres
- Number of mobile clinics
- Number of type of other vehicles

This information should be updated annually by the district information officer. Various sources will need to be tapped to obtain the information, e.g. PERSAL, census data updated. There needs to be a standardised method of calculating the populations.

Management information

The district management team must know how the resources for which they are responsible are managed. For example, financial type cost-efficiency information such as average cost per patient day (for in-patients at community hospitals and outpatients) would be important to determine. Utilisation of health resources such as bed occupancy rates and efficient use of resources such as average length of stay are also useful.

This information needs to be derived from a number of databases. The information team would need to calculate the necessary indicators 3 or 4 times per year for internal (district) management use. They should only need to be sent to provincial or national level on an annual basis.

Maternal, Child and Women's health



Mortality data

- maternal mortality rate
- infant mortality rate
- stillbirth rate
- early neonatal death rate
- late neonatal death rate
- post-neonatal death rate
- under 5 mortality rate

For all these rates the number of deaths and the denominator number should be indicated. They should also be disaggregated by cause. These and other mortality rates need calculation. The deaths (numerator) need to be obtained from the vital statistics system. The denominators vary but are largely related to births, live and stillborn, and should also be obtained from the vital statistics system.

Morbidity data

- Proportion of births weighing less than 2500 grams - obtained from analysis of maternity data or birth notification data.
- Number of cases of acute flaccid paralysis, neonatal tetanus, measles - obtained from notifiable diseases.
- Teenage pregnancy rate, disaggregated by age - obtained from analysis of maternity data or birth notification data.

Health service data

- Proportion of births delivered in a health facility
- Proportion of births delivered by trained personnel
- Proportion of births where women attended antenatal services at least 3 times
- Proportion of pregnant women immunised against tetanus
- Proportion of children attending services appropriately immunised at 1 year of age
- Proportion of hospitals or maternity facilities that conform to “ten steps to successful breastfeeding”
- Number of terminations of pregnancy, age and reasons for termination

These data need special collection, e.g. termination of pregnancy data. They may need special calculation, e.g. proportion attending antenatal clinic three or more times.

Oral health

Proportion of population on piped water; of these which proportion has a fluoridated water supply. Annual calculation required.

Environmental health

- Proportion of population with access to adequate, safe drinking water
- Proportion of population with access to adequate sanitation
- Proportion of population with access to safe housing
- Proportion of population with access to effective refuse disposal

- Proportion of food preparation premises which comply with legal standards
- Special surveys required

Occupational health

- Number of work related deaths, analysed by cause - special survey or research required
- Number of work related injuries, analysed by cause - special survey
- Number of work related disabilities, analysed by cause - special survey

Adolescent health

Mortality rates by cause of death and analysed by age - analysis of vital statistics required.

Infectious diseases

- Prevalence of STD's (number of people diagnosed with STD's) - routine data analysed to give number of STD attendances - calculation required
- Proportion of clinics or hospitals where HIV counselling is available or accessible - special survey required
- Percentage of new smear positive TB cases cured at first attempt - analysis of register
- Tuberculosis prevalence rate and number of cases - notification data
- Malaria numbers and rate - notification data
- Malaria case fatality rate - special survey or research

Care of older people

Geriatric health service utilisation rate (based on the number of visits by people over the age of 60 divided by the total population over 60).

Obtained from routine data of geriatric visits, followed by calculation.

Mental health

Proportion of clinics providing psychiatric counselling and medication - annual survey.

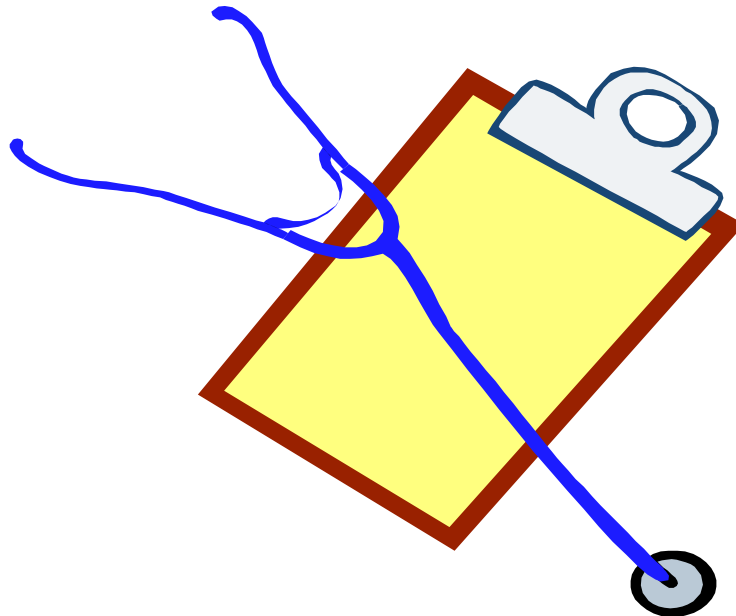
Other indicators

- Number of motor vehicle related deaths - analysis of vital statistics
- Number of motor vehicle related injuries - special survey
- Proportion of facilities with appropriate essential drugs - annual survey
- Proportion of facilities with stock control systems - annual survey
- Prevalence of diseases in general (this is basically the routine analysis of every patient visit by the diagnosis made at the visit) (*This should be read in conjunction with point made under routine data collection; in reality the number of diagnoses that can be recorded on a manual system is limited and a strategic decision will need to be made on what routine data is in fact collected. At present there are a number of different systems operating around the country.*)

Special surveys

These can be done on a two or three yearly basis dependent on resources, skills and capacity.

- Breastfeeding rate at 4 and 12 months
- Proportion of children under 5 malnourished - below third percentile for weight and height
- Micronutrient deficiency rates
- Percentage of children under 6 with no dental caries
- Percentage of children aged 12 with decayed, missing or filled teeth
- Percentage of people aged 60-64 who are edentulous
- Substance abuse prevalence
- Prevalence of HIV in the population
- Proportion of primary care practitioners who correctly manage patients with STDs
- Proportion of physically disabled with appropriate assistive devices



DEFINITIONS

Stillborn rate

The proportion of babies born dead after the 28 week of gestation, per 1000 births (live and stillborn), in a given year.

Perinatal mortality rate

The proportion of babies who die between the twenty eighth week of gestation and during the first seven days of life, per 1000 births (live and stillborn), in a given year.

Infant mortality rate

The proportion of live born babies who die before reaching the age of 1 year, per 1000 live births, in a given year.

Neonatal death rate

The proportion of live born babies who die in the first twenty eight days of life, per 1000 live births, in a given year.

Early neonatal death rate

The proportion of live born babies who die in the first seven days of life, per 1000 live births, in a given year.

Late neonatal death rate

The proportion of live born babies who die between the eighth and twenty eighth day of life, per 1000 live births, in a given year.

Child (under 5) mortality rate

The proportion of children who die before reaching the age of 5 years, per 1000 live births, in a given year.

Teenage pregnancy rate

The proportion of all births during a specific year which are to women who are less than 20 years of age (irrespective of marital status).

Maternal mortality rate

The proportion of women who die whilst pregnant or within the first 42 days post-partum, per 100,000 births, in a given year.

Low birth weight rate

The proportion of live born babies weighing less than 2500 grams, per 100 live births, in a given year.

Co-ordination and standardisation

A common problem experienced is that there is no single co-ordinating body to bring some kind of standardisation to *minimum routine data sets*. Communication among national, provincial and district authorities is generally poor. This results in the development of fragmented, unco-ordinated, non-comparable data sets and systems. Standardisation is one of NHIS/SA's terms of reference and it is currently being addressed.

Vital considerations for the development of minimum routine data sets are :

- Standardisation. Minimum routine data sets must be standardised in terms of format and content as far as possible. Some variation should be allowed for unique circumstances in different provinces. Basic items must be fixed and standardised among all provinces.
- Usefulness. Data must be useful for planning, management, monitoring and evaluation of services at each level of health care.
- Minimum routine data sets must be based on indicators reflecting the health status of the community.
- It must be possible to “link” routine data with other relevant data.
- The collection of routine data should not place an excessive burden on collectors.
- Routine data must be useful at the point of collection.
- Routine data sets must address the information needs of all stakeholders.
- Routine data must feed into a user-friendly reporting system. (Previously data were aggregated at inappropriate levels. It was difficult for users to see what data were relevant for them and what were not.)
- The entire routine system must minimise opportunities for “human error”.
- Information needs will change over time as the needs of the district change. It must be possible to adapt the minimum routine data set as required.

From the Free State case study

A minimum routine data set for Primary Health Care (PHC) was developed in the Free State as part of the PHC/INFO project. However, the development of a routine data system was found to be only one part of the PHC information system and should be complemented and supported by various other data components and processes related to the evaluation, interpretation and use of data in order to make any real difference in the planning and management of the PHC.

It was found that minimum data sets must meet the information needs of the nurses who collect the data and the district managers who use the data. They must also be able to meet the information needs of higher levels of management who will extract essential minimum data sets from the districts as required. District managers should critically question requests for the collection of data on indicators that appear irrelevant. They must insist on motivations as to why such items are to be included in a minimum routine data set.

A minimum data set for PHC should be exactly that : a minimum data set. The range and scope of data to be collected routinely by PHC nurses should be limited to a minimum as negotiated with health authorities.

From the Eastern Cape case study

The main criterion in the Drakensberg District for the inclusion of an item in the minimum routine data set was its *relevance and importance* for local *planning, management, monitoring and evaluation of services*. Provincial health authorities did not reply to a query as to why certain indicators pertaining to nutrition, family planning and immunisation had to be retained in the minimum routine data set for this district. These indicators were then excluded from the district's minimum data set. This resulted in a critical reconsideration of the use of data at a provincial level, and provincial health authorities in the Eastern Cape are apparently now supporting the idea of a minimum routine data set for purposes of on-site management.

Tools for data collection

Examples of some tools for data collection are:

- Road to Health Card
- Family planning Card

It is acknowledged that the use of multiple forms and cards, which may differ between facilities even in the same district, is a source of confusion and sometimes frustration. When trying to ensure that all health service providers capture the same types of information which can be aggregated into a district level report, it is often necessary to change data collection procedures.

In the KwaZulu Natal and Free State provinces, experience with various data collection tools has led to the condensing of all the main primary health care data needs into one tick sheet. An example is shown as the "Attender card". (Examples of *Road to Health Card*, *Family Planning Card* and *Attender Card* are shown in **Appendix C.**)

CHAPTER 5

TYPES AND SOURCES OF DISTRICT HEALTH INFORMATION

Types of information

There are several components on which the health information system should be based. These components are the building blocks of NHIS/SA and are listed below with examples to illustrate :

1. Socio-demographic information

This gives information about the number of people and their social and economic status. This information supplies the broad indicators that will determine and affect the health of a community. **E.g. Number of people in a particular district; number of children below 1 year of age; average income per person per year.**

2. Health status

This provides information about the health of a particular group of people. There are many examples of health status, the most important of which are mortality and morbidity. **Examples of these include : the infant mortality rate (number of infants dying in the first year of life); the tuberculosis incidence rate (number of people getting tuberculosis).**

3. Health resources

This gives information about the capacity of the health system to provide services and is important for managing the health system. **Examples of health resources include information regarding human resources : how many doctors and nurses there are in the district; information about physical facilities: how many clinics there are with how many waiting rooms; how much money is available to the district.**



4. Health care provision

This information gives an idea about the quality of services. **Indicators here could include the number of patients seen by a doctor or a nurse per day or the average distance of rural clinics from people's homes.**

5. Health care utilisation

Information in this category relates to which category of person is using which type of health service. **For example, the number of pregnant women who attend antenatal clinic in the first trimester of pregnancy is an important indicator.**

6. Public information

Health promotion is the process of enabling people to increase control over, and to improve their health. To reach such a state of complete physical, mental and social well-being, an individual or group must be able to identify and realise aspirations, to satisfy needs and to change or cope with the environment. Health is therefore seen as a resource of everyday life.

7. Health care coverage

This gives information regarding the success of the health services in reaching a particular target group. **For example, the proportion of children in the first year of life is one indication of the success of the immunisation program.**

Determining information needs

The following points should be considered in deciding what information is needed :

Data versus information

There is a difference between "data" and "information". "Data" are the actual numbers which you collect at your collection points. "Information" is the meaning you give to these data. You need to decide what "information" you want before you can decide what "data" you need to collect.

For example, to provide information on the number of children below 1 year of age, the data that would have to be collected would be the birth date of every child. The information system would then count the number of children who were born before a certain date, providing the final count of children below 1 year of age (information).

External demands

The national level, the provincial level and others will place demands on the district for information (and hence data). The pressure to provide for these demands is often difficult to resist. NHIS/SA aims to work towards a point where data is only collected if it is of use to those at the level at which it is collected. While this is presently impractical, local staff should point out to those requesting the data when they are spending their time collecting data

that are not locally useful.

Variation

There is considerable variation between districts. Each district has some unique information needs. It is valuable to find out what the data needs of other districts are as it may highlight important data elements which may have been overlooked. However, districts should not feel pressurised to have the same data needs as other districts.

Management Needs

The range and type of management decisions that need to be made at district level will indicate what the district information needs are.



Types of data to collect

A health worker with the Initiative for Sub-District Support in the Eastern Cape captured the frustration health workers sometimes feel with forms designed for the collection of information. In this instance during 1997, the health worker noted that:

“the District Health Information System is being constrained and weakened by information requirements from higher levels that provide no benefit to the management of district health services. **This is weakening management at the district level which in turn is undermining the effective and efficient development of the District Health System.**” (bold in original).

Data collection is based on what the organisation wants to achieve. In this case, this would be health status data as well as management data. When data is based on clear targets and indicators, it lends itself more easily to collection.

Starting off involves determining your own goals and/or finding national or provincial goals. These goals are then translated into targets which are used as a basis to develop indicators. The actual data elements which must be collected are precisely determined by the indicators.

It may be that there are no national or provincial goals which are set. It may also be difficult to set your own goals at a district level. There may already be rigidly set goals, targets and indicators from the national and provincial level which are not appropriate for your district.

Choose indicators that you can influence. There is no point in measuring something you can do nothing about. This focuses data collection and makes it easier to determine which data variables are essential to collect.

(For more information on goals, targets and indicators, see Chapter 2 *Step 4*.)

Sources of information

The major sources of information to support the district management team include :

- Health facility-based information.
- The public and private sectors.
- Community-based information systems.
- Special studies, survey and information from other sources like census data, health system research, etc.



Data sources

There are a number of data sources/databases available to district and provincial managers. Each of them will provide different data. Each will have to be accessed in order for the appropriate and relevant data to be extracted. The reliability of these data sources will determine the reliability of the information at every level, (facility, district, province, national) of the national health information system.

Census - demographic information. Number of people, with age and sex breakdown analysed by geographical area. Socio-economic variables such as income levels, housing will also be available. These data will provide the important denominators for many indicators. (e.g. number of doctors divided by the total population will give the number of doctors per 1000 people).

Vital statistics - information regarding births and deaths. Number of births, deaths, cause of death analysed by geographical area. These provide key numerators and denominators for many important health indicators such as mortality (e.g. infant mortality, maternal mortality rate, specific disease mortality rates).

Notifiable diseases surveillance - in terms of the Health Act of 1977, many infectious and other diseases, must be notified to the Department of Health. This database forms the numerator for the calculation of disease incidence rates (e.g. tuberculosis, measles, malaria incidence rates.) The list of diseases that need to be notified is long and consists of :

- AIDS
- Acute flaccid paralysis
- Anthrax
- Brucellosis
- Cholera
- Congenital syphilis
- Haemorrhagic fever
- Diphtheria
- Food poisoning
- Haemophilus influenza
- Lead poisoning
- Legionellosis
- Leprosy
- Malaria
- Measles
- Meningococcal infection
- Paratyphoid fever
- Plague
- Poisoning agricultural pesticides
- Poliomyelitis
- Rabies
- Rheumatic fever
- Tetanus

Trachoma
Tuberculosis
Typhoid
Typhus
Viral hepatitis
Whooping cough
Yellow fever

There are special prescribed forms on which these diseases must be notified. They need to be notified as and when they are diagnosed. For further information on notifiable diseases, see **Appendix B**.

Surveys - Researchers, government departments and other groups carry out community surveys from time to time. Many health indicators are dependent on such surveys. The census is a special example of such a survey. Other examples of special surveys are immunisation coverage surveys (measuring the proportion of children immunised), disability prevalence surveys (measuring the number of people with a particular type of disability.)

Surveys are often also carried out in health facilities and can provide useful indicators (e.g. antenatal surveys measuring the prevalence of HIV status in pregnant women).

Health Resources databases

This includes information related to :

- human resources (PERSAL database)
- finances (FMS database)
- physical facilities
- equipment
- pharmaceuticals and drugs
- other stocks

Each of these databases should be able to provide relevant information to managers at provincial, district and facility level.

Routine data

Routine data collection can be done in a number of different ways and for different purposes. These include :

- *Special registers* such as birth registers, tuberculosis registers, mental health registers which can give specific information on the specific events/diseases that they monitor, e.g. teenage pregnancy rate; proportion of unbooked deliveries; tuberculosis cure and default rates; chronic mental health compliance rate. (In the case of computerisation, the need for these registers will disappear.)
- Hospital admission and discharge forms. These data can be used to give indicators such as diagnoses on admission; hospital death rates; average length of stay.
- General outpatient and clinic attendances. It is this type of data that is

generally referred to as routine data and often when people talk of health information systems they refer to this data only. These data are by themselves quite limited. However they are useful for calculating indicators such as: utilisation of health services (such as number of visits per person per year); general workload indicators (such as number of patients seen per professional nurse). They are also useful for knowing what kind of patients attend the facility, what is wrong with them and the main kinds of work being done at the facility. With the manual information systems that operate in the vast majority of primary level public facilities (now and for the foreseeable future) there is a limit to how much data can be collected. Each variable added increases the workload considerably. In the past, much data collected this way at considerable cost to health professional time, was not analysed, interpreted or fed back to the facilities which collected the data. The result of such collection is an exercise in futility.

CHAPTER 6

DATA ANALYSIS

This chapter addresses the following questions :

- what happens to data once it is collected ?
- what is meant by data analysis ?
- how can data analysis be applied at the district level ?

DATA VALIDATION

Once the data has been collected, it should be checked for any inaccuracies and obvious errors. This is called data validation. Ideally, data validation should be done as close to the point of data collection as possible. The data can be checked in a number of ways:

- **Face validity:** Look at the numbers and text on a data report or form and see if anything stands out as being obviously wrong or odd. Check that the numbers make sense within the context that they are recorded, e.g. a weekly attendance figure of more than 10 000 recorded for a small clinic would obviously be inaccurate. Check also that the text on the form has not been altered, e.g. if “antenatal attendances” has been scratched out and replaced with “TB defaulters” this must be queried.
- **Inconsistencies:** Do the numbers in different parts of the report tally with each other, e.g. is the number of patients seen by the nurses in the dressing room less than the total attendances ?
- **Gaps:** Are there any gaps (missing items) in the data which do not make sense?
- **Calculations:** Simple calculations can be done to ensure that the data make sense, e.g. when examining the distribution of recorded weight for age among children, the percentage of children falling below the third percentile should not normally be more than 20%. Similarly, the percentage percentage of children falling above the 97th percentile should not normally be more than 20%.

If these checks indicate that there are problems with the data, problems should be addressed at the source. Where corrections to the data are required, these must be made.

DATA COLLATION

The next step involves what is called the *collation* of data. This involves the aggregation or summarising of data into sensible categories where this is appropriate. If two clinics serve a defined population in the district, it would make sense to combine their figures before more detailed analysis is done. However, where one part of the district is more well off and another part less well off economically, you might want to aggregate the data for each part and compare them. The data for the district as a whole needs to be aggregated so that the district picture emerges.

Collation must also be done over time, e.g. looking at data by week, month or quarter. For some data, it may not make sense to look at one month or one week of data. This data may be summarised into quarters, a year or five years, depending on the type of data. For example, it does not make sense looking at infant mortality on a monthly basis whereas an assessment of annual trends would be regarded as essential.

There is no prescribed way of collating data and it depends very much on the individual district how they would require the data to be broken down. However, collating data for the district as a whole would be a requirement for all districts.

CALCULATING INDICATORS

The calculation of indicators is a key part of data analysis. Often, this requires obtaining data from different sources. All the data validation checks mentioned above should be applied to all these sources. The main purpose of analysis is comparison, e.g. comparison with other districts, with targets, between sub-district areas, with other years or months, etc. The calculation of indicators from the data makes comparison possible.

There are three main types of indicators in the health sector :

- workload indicators,
- coverage or performance indicators, and
- health status indicators.

A simple workload indicator is the number of patients seen per staff member, e.g. the number of patients seen by medical officers divided by the number of medical officers (at a facility or in the district as a whole). This enables one to determine whether there is a fair distribution of workload in the district amongst different facilities. This is a useful managerial indicator and because of the inherited fragmented health system, dealing with equity of workload will probably be a key area which district health management teams will have to address.

A coverage or performance indicator would show if the desired population is being reached by services in the district. Immunisation and family planning

lend themselves to “coverage” type indicators For example, what proportion of children under the age of one have received their primary course of immunisation (BCG, Polio 0,1,2,3, DPT1,2,3,HBV1,2,3 and measles)? This may be calculated as follows : number of children under one completing the full course of immunisation divided by the total number of children under one. Facility data and census data would be required to calculate this indicator. Comparisons with previous years and with targets are possible with this indicator.

A cumulative coverage graph makes it possible to assess on a monthly basis whether an annual target will be reached or not. Health status indicators will show whether the health status of the community served by the district is being improved. The proportion of children by weight and age who fall below the third percentile is one type of health status indicator. This will indicate what proportion of children seen at facilities are underweight or malnourished and is an indirect indication of the health status of the community. The incidence of TB (the number of new cases notified per the total district population) will indicate the extent of TB in the community and whether it is increasing or decreasing when compared to previous years.

INPUTS, OUTPUTS, PROCESSES AND OUTCOMES

Another approach to analysis is to examine inputs, processes, outputs and outcomes.

- **Inputs** – what one puts into health services in order for them to work properly, e.g. staff, finances, resources, equipment.
- **Processes** – the activities that occur in the functioning of health services, e.g. folders are made up, patients move from one part of the health centre to another, etc.
- **Outputs** – the tasks that are completed at the health centres, e.g. number of immunisations done, number of patients seen.
- **Outcomes** – the affected health status of the community served e.g. incidence of TB, percentage of malnourished children, infant mortality rate.

This approach makes various types of analyses possible :

- cost benefit analysis - what benefit has been achieved given the inputs ?
- efficiency analysis - what outputs have been achieved given the inputs ?
- analysing the efficiency of the processes, e.g. measuring waiting times.
- analysing effectiveness - comparing outputs to outcomes (is what is being done making a difference ?)

INTERPRETATION

Once the data have been collected and collated, and indicators have been calculated, the data need to be interpreted. Interpretation addresses the question of the *meaning* of the data. An important component of the interpretive process is the assessment of the quality of the data and their relationship to what is being measured. Despite extensive validation checks, it is sometimes difficult to correct data or to be absolutely sure that they are accurate. Familiarity with the health services in the district and the health information system will provide some sense as to how trustworthy the data is.

In assessing the quality of the data the following question must be asked - do they measure what they are required to measure? The data that is obtained is likely to be biased in one way or another. For example, although routine nutrition data are obtained mainly from facilities, they may not reflect accurately what is happening in the community. It may be that those who are more ill are not making use of the health services or it may be that they make use of the services more often. Data may not reflect what is really happening, e.g. data on condoms handed out does not indicate to what extent they are actually being used.

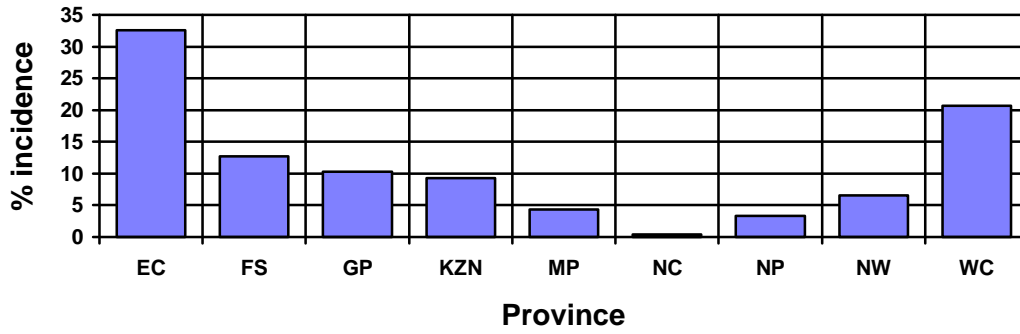
REPORTING

Data and information should be presented in such a way that it is concise, clear and to the point. It is more effective to present data using pictorial methods such as graphs and diagrams than to use too many tables. It is best to use a combination of narrative text, a few tables and many graphs. Interpretation of the data should be part of a report.

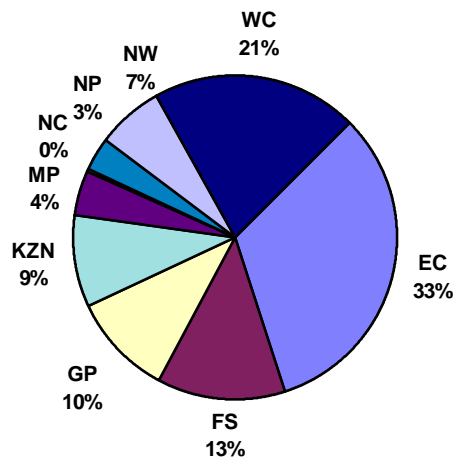
Simple graphs and bar charts of service provision, often on walls, can motivate staff at various health facilities (clinics, health centres, hospitals, and management offices at provincial and national levels). This information is extremely useful when health workers come to revise quarterly and annual work plans.

A few examples of information reporting tools are shown below:

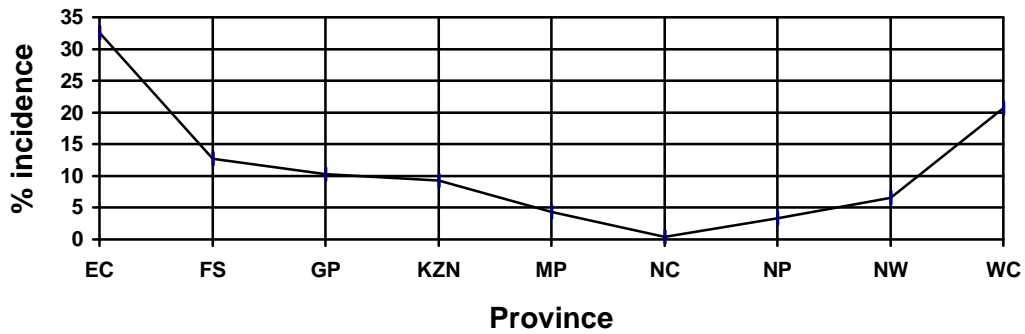
Pulmonary TB Jan-Jun '97



Pulmonary TB Jan-Jun '97



Pulmonary TB Jan-Jun '97



Feedback through reports to those who collected the data is essential. It is important to spend some time determining who will be on the list of parties receiving copies of the report. It is essential that those who are able to take action based on the content of the report, should receive it. Where appropriate, the community and higher levels should be included in the list.

ACTION

Data collection and processing should result in action. This is easier if goals, targets and indicators have been developed. Indicators will show whether targets are being reached and, where necessary, corrective action can be taken. It may be necessary to convene meetings to discuss the contents of reports and plan appropriate action. A comprehensive set of reports is very useful in that it can provide the basis for a detailed annual district based planning process.

Data and information can also provide the basis for the evaluation of services and programs, measuring effectiveness and efficiency, i.e. are the required things being done in the correct way ?

WHO IS RESPONSIBLE FOR PROCESSING DATA?

There should be a full-time district information officer who manages the information system at district level. If this is not possible, this task should be part of the portfolio of one of the members of the district health management team.

At facility level, there should be at least two persons responsible for information management (if one is absent, the other would be available to do it). Information management may only be a part-time responsibility for these people. Their tasks would include :

- Ensuring that those responsible for collecting data, do so.
- Supporting the process of data collection.
- Collecting the data collection sheets from the data collectors on a daily, weekly or monthly basis.
- Checking the accuracy of data on the sheets and correcting these with the assistance of the data collector(s) concerned.
- Passing the data sheets on to the district information officer.
- Where possible, assisting in calculating, interpreting and reporting on relevant indicators.

A clerk, nurse or nursing sister could perform the above tasks at facility level.

At district level, the district information officer or DHMT member will collate all

the data from the facilities, calculate relevant indicators, interpret them and report on them. This includes giving feedback to the relevant persons where required. The district information officer will look at the district-wide picture and sub-district variations. It will also be the function of the district information officer to liaise with higher levels of the health system and with information or data sources which are outside of the district e.g. Department of Home Affairs.

CHAPTER 7

INFORMATION FLOW

Data flow problems

Information flows are crucial to a discussion of an effective DHIS. Historically, data collected at the primary level has been of poor quality.

Data flow problems which have contributed to this have been :

- the fragmentation of data flow
- the lack of feedback to those collecting the data, and
- the lack of use of collected data at the district level.

A health and management information system must be able to satisfy the information needs of *all* the stakeholders in the system. Current systems, such as the example described below, are unable to do this because of severe data flow problems.

A survey of the health information system in Mitchell's Plain in the Western Cape showed that the system was *fragmented* and *inefficient*. The survey showed that a large number of forms was used to collect data at the local level, much of which was duplicated. A substantial percentage of staff time was being used for data collection. No use of information for management at local level was identified and personnel had little or no feedback from data sent to service management. The survey in Mitchell's Plain also demonstrated the complexity of the seemingly chaotic and spaghetti-like ways of a large number of data reporting systems, i.e. information systems (see Figure 7.1).

The first level of fragmentation in this example is that a considerable number of individual and relatively independent institutions and authorities are running different services, e.g. the province are running curative services while different municipalities and local government are running (different) preventive services. Within the individual institutions there are also vertical and independent structures

Another level of fragmentation was that of the vertical programs e.g. national or provincial run programmes for tuberculosis, maternal and child health, environmental health, reproductive health, etc. Each of these programmes placed demands for information on the local level without co-ordinating with each other. This contributed in a major way to the duplicated and excessive data collection processes which were in place.

The conclusion drawn from this is that all the various role-players have used information and reporting systems, knowingly or not, as an important means to build their small or big empires. The institutional spaghetti with all the kingdoms has made it very difficult to implement changes and the chaotic information infrastructure has been a major obstacle.

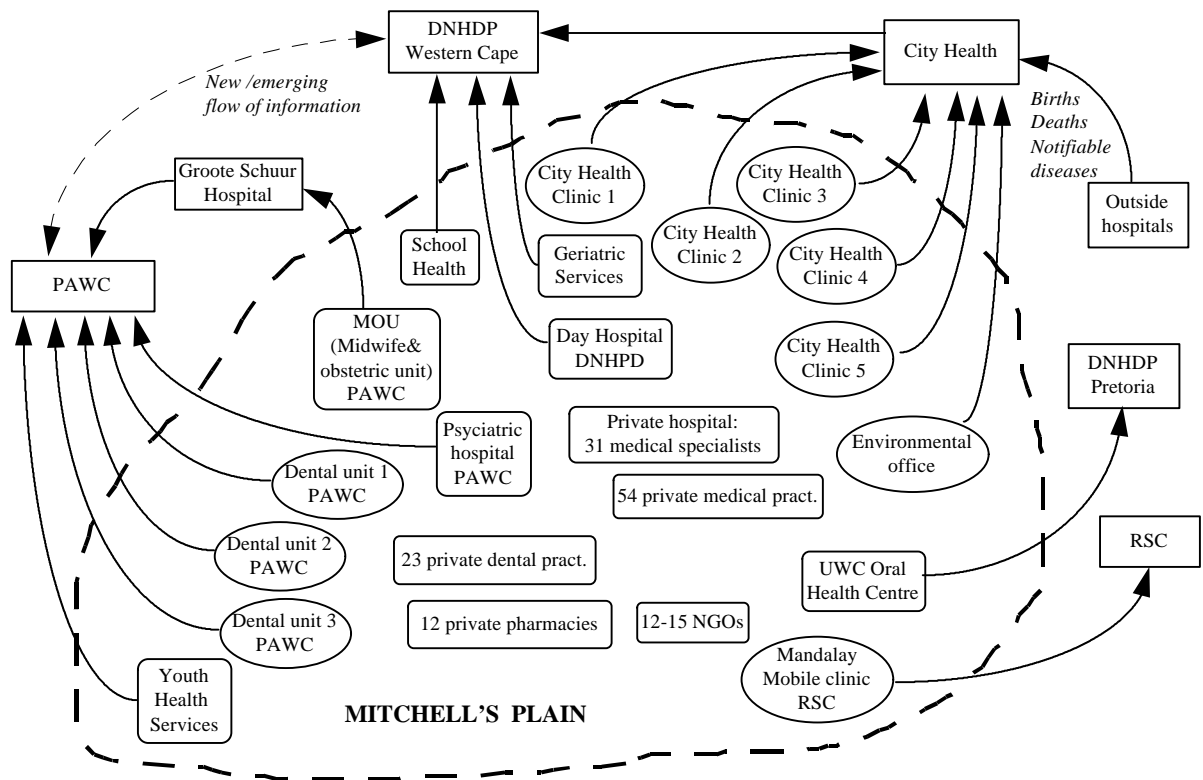


Figure 7.1. The figure shows the flow of information in Mitchell's Plain health district. Abbreviations: DNHPD (Department of National Health and Population Development); PAWC (Provincial Administration Western Cape); RSC (Regional Service Council); NGO (Non Governmental Organisation); UWC (University of Western cape); City Health (Cape Town City Council Department of Health).

The main principles of information flow

1. As data flows from lower levels to higher levels, less data is required. (See Figure 7.2) Data collection normally begins at the community/facility level. It should then be sent to the district office. From there it may go to a regional office and then to a provincial level before being sent to a national level. The national level will have international reporting requirements. Each level has different requirements. The facility might want to know how many swabs are used on a daily basis. This information would be irrelevant to the national level. However, information such as the infant mortality rate is of international concern and thus important for *all* levels of the health system. Become familiar with the information flows within and outside your district.

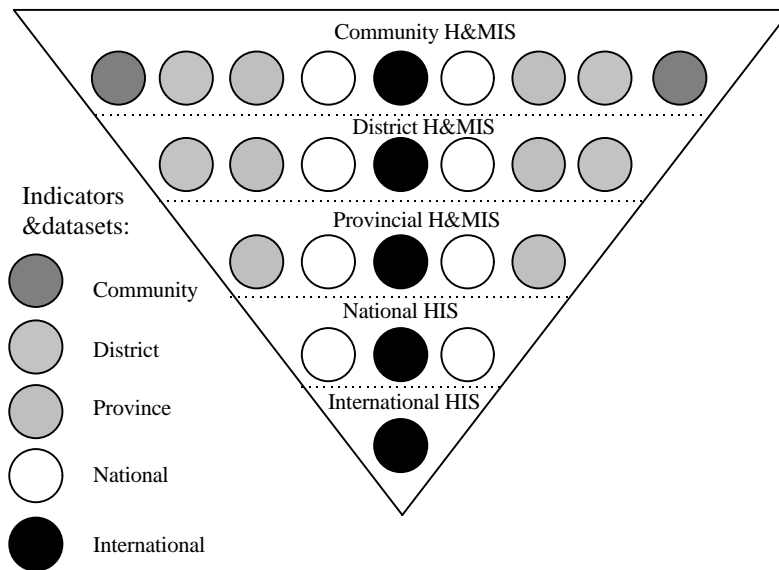


Figure 7.2: The Triangular Model of Information Flow

2. Information flow is a two-way street. Feedback should be given to the level from which data is sent. One of the major complaints of local facility staff is that they seldom get feedback on the data that they collect or are told why they are collecting the data. Good feedback will definitely improve the accuracy of data collection.

3. Create a district information centre to which all data collection in the district flows as this will prevent data flow becoming fragmented.

4. The planning cycle should be kept in mind when considering information flow, i.e. the process of data collection, collation, analysis, interpretation, reporting, disseminating and then action. These processes should be carried out at as low a level as possible by facility or district personnel. Data collection which ultimately leads to action will motivate personnel about the process and improve the quality of the data.



CHAPTER 8

INFORMATION UTILISATION

Framework for health information reporting..1*Framework for health information reporting.*

In this chapter, a framework is presented to assist health workers assess how information will be used, both at the collection point and at higher levels, **and what decisions those who collect information can expect from higher and lower levels once the information is analysed.**

Matrix of health care levels and existing health information reports.

<i>Level/Reports</i>	Epidemics Outbreaks	Notifiable Weekly	.Monthly report.	Two-monthly reports.	Annual Report	Social Sector Report	Year 2000 Goals
Community			x				
Mobile			x				
Clinic		x	x		x		
CHC		x	x		x		
District	x	x	x	x	x		
Region	x	x	x	x	x		
Province	x	x	x	x	x		x
National	x	x	x	x	x	x	x

The above matrix shows the types of information reports that are typically encountered at district level, and how they are linked to reports at provincial and national level. Health workers are encouraged to discuss their health information needs and revise this matrix as part of their review of the health management processes.

Some likely uses of information at various levels of the health system are discussed below, with several boxed examples.

Community level..2*Community level.*

At this level, there are no fixed health facilities, but there are community-based health activities like nutrition gardens, school feeding programmes, home-based care , safe sanitation promotion, and a number of general health promotion activities.

- In some communities, information may be collected on household health status. This information is used by visiting health workers to decide on suitable health promotion activities.

- Community leaders can use this information to motivate for the targeting of health or intersectoral programmes (eg. feeding programmes, assistance with building toilets, etc.).
- Information on the Road to Health Card is particularly useful in promoting better health for mothers and children (during discussions between a health worker and the child's mother).

Facility level..3Facility level.

These facilities provide different types of care, have varying governance structures, and have access to different types of information.

The Mobile Clinic

This is primarily an outreach programme to bring health care closer to communities, especially the immunisation and growth monitoring programmes. Health promotion is an important activity at this level of contact between health care workers and communities.

- Information on Growth Monitoring can be used to inform communities on nutrition status in the area, and encourage them to develop strategies to deal with problems (including an identification of what help they can expect/request from Government, and what resources they have from within the community).
- Information on immunisation (or lack of it) can be used to open dialogue with communities over how to increase immunisation rates. Other information can be on ante-natal, family planning, post-natal, and other services.

Clinic

The Clinic provides the first level of comprehensive care. Staff at the clinic keep tally sheets and also obtain information from discussions with community members and leaders.

- The head of a clinic can use information on family planning, immunisation, etc. to decide whether it is necessary to organise outreach programmes into the community.

- Information on STDs may prompt clinic staff to explore ways of mobilising women if only men come for treatment, or for a male-targeted family planning programme if only women come for family planning services.

Community Health Centre

The CHC provides a wide range of services, including maternity care. Information available at this level can be used by various communities, government, and NGO structures to mobilise them into action on health issues. Health workers should help identify what information can be given to which leaders, and to assign responsibility for any action that needs to be taken.

As shown in Chapter 6, a wide range of services can be analysed and presented in the form of wall charts (bar, pie, and graphs) to stimulate discussions and to motivate staff.

- Information on high maternal deaths can be used to mobilise such agencies as Telkom to provide telephones for improved communications to support referral systems.
- Information on drug stock-outs is sent to the district office, with the expectation that more timely delivery of drugs will be ensured.
- Clinic Health Committees must be supplied with information on the pattern of ill-health within the catchment area, with specific questions / proposals on what can be done.
- The Councillor needs information from Clinics or CHCs so that he/she can use it in negotiating for resources at the Council level. For instance, information on high rates of diarrhoea can be used to argue for more resources to support water point protection/or construction.
- Traditional leaders, given the necessary information, can be mobilised to support health interventions.

District Hospital

The district hospital is a very good information resource for the district. As the first level referral facility for clinics and community health centres, the district hospital accumulates information on all aspects of curative-related health care activities. Information is available from several departments (Out-Patients, Pharmacy, X-ray, laboratory, Wards and others).

- Information on the type of conditions presented at Hospital OPDs can alert hospital managers on the effectiveness of the referral system.

- A clinic that over-refers could be a sign that supervisors need to look into such issues as drug availability, level of diagnostic skills, general treatment of patients, etc.
- Information on the pattern of drug use from the pharmacy can be used to assess prescribing habits and even monitor for poor stocking, theft, etc.
- Information from wards (usually from mid-night census) can be used to assess the length of stay, discharging practices by doctors, and even the changing pattern of illness.

District level..4District level.

This is the first level of data aggregation and analysis, and it is here that the quality of reports and data for use at various levels is greatly influenced. District-level health managers need to know how they can use information to improve programmes (in securing more resources, mobilising community commitment, securing supportive supervision or in-service training programmes, and even promoting a rational use of health services).

Information comes from primary care facilities and from district hospitals, has been partially analysed at the facility level, where some action should already have been taken, based on the information.

Other health and health-related resources in the district, such as NGOs and private providers are also valuable sources of information, and every attempt should be made to insure their involvement in the district health information system. There should be information sharing as well as decision-making forums that have their participation.

- Information from the Department of Agriculture is often used to assess food availability in a district (and later at provincial level) and to influence the targeting of nutrition programmes and drought mitigation activities.
- Information on water supply coverage should be available from the Ministry of Water Affairs, and can, for instance, be related to the incidence of diarrhoeal outbreaks.

- Information on the number of schools and pupils from the Ministry of Education should be used in making resource allocation decisions for the school health programme.

- Information on patient loads at clinics can be used to note any movement away from a clinic (due to drug shortage, distance, poor public relations, etc). Action can then be taken by district managers during supervisory visits to such clinics.

Regional level.5 *Regional level*

This is a transitional level, expected to assist districts in data collection and processing. Staff at this level act as facilitators between districts and provinces. The success of their work will greatly depend on the quality of information available to inform decision-making.

- Indicators can be charted by districts, and can assist in supportive supervision of district health activities.

- Training for various health workers can be designed as follow-up activities to support districts as they implement corrective strategies identified in their operational reports.

Provincial level.6 *Provincial level*

The Province is the headquarters for districts and regions, and a comprehensive analysis of information and use for improved management is carried out here.

The Provincial Cabinet needs regular reports on health information, presented in a clear simple way, with clear guidance on the decisions that need to be made, by who, and for what purpose.

Private organisations and NGOs at the provincial level also need to be supplied with information that gives them a feed-back on their activities.

- Health indicators and trends can be used to identify inequities in health service provision and to inform strategies to achieve equitable resource allocation.

- As is the case with regions, provinces can analyse information and use the results to design tools which can be used during supervisory visits to address specific problems (eg. Communication between various levels).

National level. Bullets.

A number of publications are produced at the national level to facilitate communication between the Department of Health and a number of agencies (Parliament, Cabinet, other ministries, NGOs, private sector, the general public, and international donor agencies). These publications cover a wide spectrum of issues and are reported in many formats, such as press releases, aggregated national data, commissioned reports, etc.

Of Notifiable diseases and outbreaks assist the Health Department mobilise national and international support as needed.

National level reports:

- News Flash - Press cuttings on health in national newspapers.
- Newsbriefing - weekly synthesis of main health news nationally.
- Weekly Bulletin - summary of notifiable diseases and outbreaks.
- Monthly *Statistical Notes* and *Epidemiological Comments* on health statistics.
- Two-monthly reports on operational plans.
- Social sector report - semiannual progress report on social sector departments prepared for the Deputy President's office.
- Annual *Health Trends* and *Department of Health Report* - summary of national health status.

Overall use of information. *Overall use of information*

In the allocation of resources to Provinces and Districts, information on per capita expenditure and average health status will be important considerations.

Periodic national studies like Demographic Health Surveys provide information on trends, and are a valuable source of information to national agencies (like Ministry of Finance) and international agencies (like the IMF and World Bank) in their understanding of developments in the social sector.

Operational research (in the context of programme evaluations, commissioned research, etc.) provides useful information on health service evaluation. The South African Health Review by HST, for instance, is used by national and international agencies in gaining an understanding of South African health services.

National reports provide both inter-provincial and inter-district comparisons of coverage rates, which can be influential in the re-allocation of resources to tackle health problems.

National health goals and strategies are revised using information contained in several reports compiled nationally.

Information utilisation is greatly enhanced if the timing of report production is in harmony with the planning cycle at each level.

Feedback must be provided to all those who prepare information for decision-making. The main opportunities for feedback sessions are:

- during planning sessions when data from previous periods (quarter, annual, or medium-term plan) is reviewed as the basis for deciding of future goals.
- During supervisory visits when decisions taken as a result of available information can be discussed and explained to health workers.
- During review meetings with various health-related bodies (Parliament, provincial Cabinets, District Councils, Clinic Committees, etc.)

Every health manager and worker has a responsibility to provide feedback to those who supply information, including all service users. Such feedback may also be a way of incentivising those who have done well in the achievement of their planned goals.

APPENDIX A

THE HISPP CASE STUDY

The Health Information Systems Pilot Project (HISPP) is a Western Cape based pilot project seeking to develop a district based health and management information system. The project started in early 1996 and will run to mid 1998. It is based in three pilot areas in the Cape metropole: Khayelitsha, Mitchell's Plain and the area served by the Blaauwberg Municipality. It is a collaborative project with the University of Cape Town, University of the Western Cape, the Provincial Administration of the Western Cape and the local authorities operating there. The project falls under the Directorate of Information Management, Department of Health, Provincial Administration of the Western Cape and is funded by the Norwegian government through NORAD. The project seeks to move from a fragmented district level information system to a unified and coherent system (see Figure A.1).

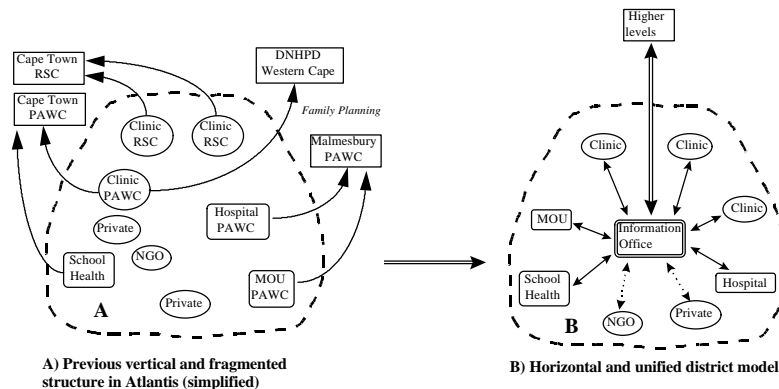


Figure A.1: The task is to transform the previous fragmented structure (A) to the new unified district structure (B)

What is described below is how the steps discussed in Chapter 3 were applied in the case of HISPP.

Step 1. Selecting pilot sites: Start with those who take the initiative themselves.

Three sites with very different demographic characteristics, socio-economic profiles and urban, peri-urban or rural dimensions were chosen. These were Khayelitsha, Atlantis and Mitchell's Plain. An important criterion in the selection of the pilot sites for the project was that some work had been done before. This reflected some local experience or interest in health information systems. In both Atlantis and Mitchell's Plain, the process towards a district health and management information system had been going on since 1994. In Mitchell's Plain the process grew up from local initiatives and was based on local needs while in Atlantis the need for an information system was

identified from outside. However, in both these areas health services were fragmented and there was no local management system in place to drive the process.

Step 2. Form An Information Team: Base it on local commitment and create local ownership.

This was achieved through the following steps :

- Start with a core group of interested and committed people.
- Employ or select a *site facilitator* at each site who will act as an information officer and co-ordinate all activities in the district.
- Select someone at each facility to co-operate with the district facilitator.
- Get people from the community to form task teams or working groups on focused areas. Task groups should be provided with appropriate support.
- Continuous training should be provided within the following fields:
 - health information (use and analysis of information and basic system design)
 - database use and design, and
 - basic computer and Internet literacy.

(All training should be done in relation to concrete tasks and activities.)

- The clinics, day hospitals and the various health programs should work together and form task teams.

Figure A.2 reflects the above issues:

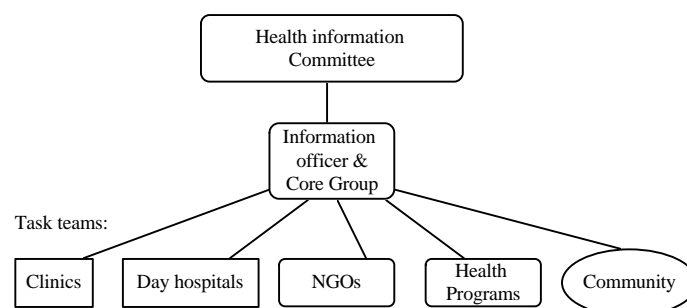


Figure A.2 The task team should represent all concerned groups.

This project found that in all three sites enthusiasm and participation were fluctuating as in many cases the people who joined the groups had no time to actually work on the project.

Step 3: Do An Information Audit : Towards an annual district report.

There was a clear need for getting an overview of the situation in the district with regard to health services, health problems, demography and socio-economic situation on the one hand, and the information systems and

available information on the other. The HISPP experience shows that the above needs can be addressed in the development of a district annual report.

The approach of putting together an annual report was as follows:

- Collect all information that is available and that is currently collected.
- In course of this process, discuss and define the information that is needed.
- Through this exercise, identify the gaps.
- The monthly district report also emerges out of this activity. When the monthly report is routinely being produced, annual reports will be produced more easily.

Problems with the data that was currently being collected were:

- Missing data
- Inconsistent data
- Variations in data from month to month
- Inappropriate data.

After a period of about six months, the annual reports were completed by teams in the three pilot sites. Achievements of the process were :

- co-operation amongst health authorities
- sharing of information with less fragmented conditions
- widespread interest in data and information
- increased participation by a wider range of people
- demonstration by the districts of their capacity to complete a complex and comprehensive information task.

Problems experienced were :

- insufficient trained personnel at district level to manage information, and
- poor district based collection of all information due to fragmentation.

Step 4. Set objectives, targets and indicators: Start with a first small data and indicator set.

One of the tasks of the Atlantis Pilot Project in 1994 was to establish a minimum data set. Workers started with a minimum data set originating from the provincial level, using the Routine Monthly Report (RMR) form. However, it is clear that a district needs more detailed information and thus a larger data set.

Provincial and local authorities collaborated to develop a draft form to replace the old quarterly report. The national set of proposed "Year 2000 Health Indicators" was used as a basis for discussions with the provincial level program managers. A proposed set of indicators for the district level was produced as a starting point. The draft form was piloted in the Cape Metropolitan Council clinics in two of the HISPP pilot sites in May 1997. It

was later given approval by top management to be implemented in all local authorities.

The following was suggested as a result of the experience of this project :

- Take the minimum dataset required by the province and corresponding set of indicators, if any. If there is none it must be developed.
- Discuss goals and the corresponding targets and indicators at workshops and meetings.
- Start using a first, if incomplete, version as soon as possible.

Step 5. Create a district information system: Towards a monthly report, a district data base and a “human” information system.

The information system needs to be developed in an incremental and evolutionary way that addresses not only the *technical* parts of the system but also the *human* components.

The project took the following approach to developing the information system:

ALL COMPONENTS ARE OF EQUAL IMPORTANCE.

A. The human components

These are the information officer, the district facilitator, the core team, the persons responsible in facilities, health programs and communities and the task teams. Training and learning by doing are both crucial elements in capacity development.

B. The process components

This involves the development of an annual report, target and indicators, a monthly report, an information system, information culture, the information and learning cycle.

C. The technical components

- Produce a Monthly District Report as the concrete routine output of the district information system.
- Design forms and procedures for data collection, collation, analysis, use and dissemination.
- Establish the district information office as the core of the district information system.
- Design and create a district database that is shared by all districts in the pilot project.

Each district will be free to add tables to the database according to their needs. The district information officer is responsible for the maintenance and redevelopment of the district database. The overall pilot project (or the province) have a similar responsibility with regard to the common district data base.

As units (facilities, programs etc.) are being computerised, they will get a copy of the database. Each district office is provided with a computer connected to the Internet. Interchange of data and updating of the database will be done using Internet or disk. A web server will be an option at a later stage.

A first step in the human & process part

One or two persons will co-operate with the district information officer in the monthly collection of data in each facility. They will analyse the data and feed back to the personnel in each of their facilities every month.

The district database

A simple computerised database has been developed to support the above processes. A database is a tool to organise and store data and contains additional tools for input of data, processing and analysing of data, and producing reports and graphics. The relational database used (MS Access) is organised by tables which contain fields. Different tables are given different names and can be designed to support particular objectives and tasks. The different tables can be related to each other by common key fields.

In HISPP, the database was developed in a participatory and bottom-up manner. Discussions around the database led to the design in Figure A.3.

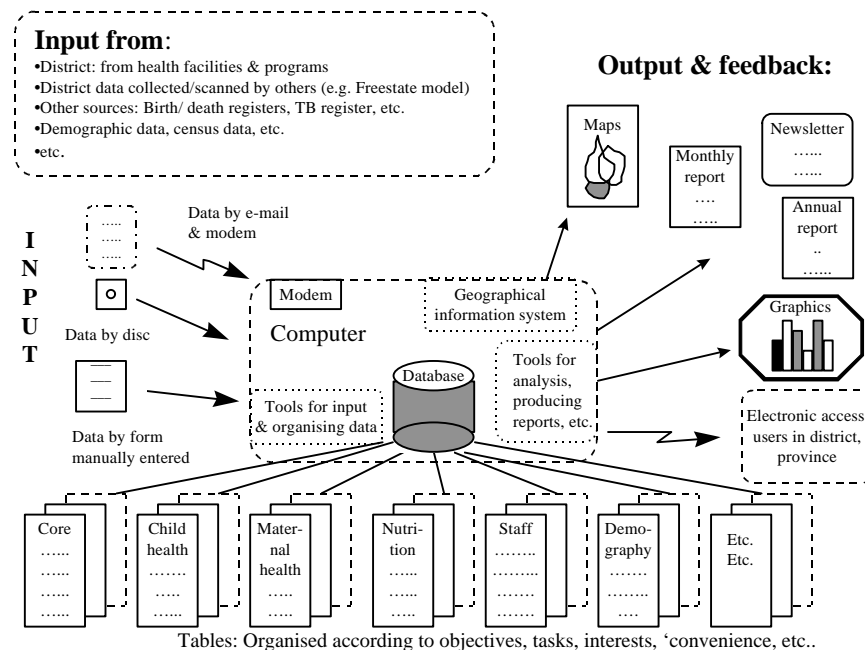


Figure A.3 Database development.

Some tables are oriented towards particular interest groups and programs, e.g. oral health, occupational health and nutrition. These are to be further developed by the groups in question. Other tables are connected to management information and include staff, resources and budget. Tables

thought to be useful for the district level are : demography, services, surveys and rare events.

The idea behind the design of the database is *to balance the need for local flexibility with the need for standardisation*. At the different levels there will be standard procedures for data collection. Each level will have to collect the minimum core data but will be free to add data and indicators according to their need.

Step 6. Developing staff capacity: Learning by doing.

Developing of staff capacity consists of:

- learning-by-doing, hands-on, on-the-job training and
- formal training.

HISPP has contributed to a week course “An Introduction to Health Informatics” run at Public Health Program of UWC/COPHE. The course is directed at district level personnel. Twenty pilot site personnel have already been trained on this course.

HISPP has also been involved in database training. The training needs in the facilities have been identified with regard to computer literacy. Selected information co-ordinators in each facility should be given basic computer training.

Step 7. The information cycle: Develop the system in an incremental and participatory way.

The basic approach is to design, implement and use small parts of the information system incrementally in a participative manner. It is important to remember that the information system contains both human, process and technical components which need to be developed incrementally in an integrated way. This case study illustrates the cyclic and participatory approach towards the design and developing of the district information system.

APPENDIX B : THE NOTIFICATION SYSTEM

“ The purpose of notification is Disease Control “

The disease reporting system in South Africa is based on government law (Health Act, 1977) and the regulations where specific infectious diseases (Table 1) must be reported to the Provincial Health Departments, who then report to the National Department of Health, Figure 1. Disease surveillance is divided into passive surveillance where routine reports are sent to the Department of Health, as well as active surveillance where research projects are undertaken and reports are compiled. Disease surveillance mainly comprises four types:

1. Notifiable disease-reporting system
2. Laboratory-based surveillance
3. Hospital-based surveillance
4. Population-based surveillance

1. NOTIFIABLE DISEASE REPORTING

A notification serves as the first step in a surveillance cycle, namely data-capturing or data collection. In South Africa, notification can be done via the mail, fax or telephone to the local authority concerned. Any person (not necessarily a health worker) can notify a medical condition. At present, \approx 35 different diseases are notifiable (Table 1).

Process

Most of the time the health personnel notifies diseases e.g., clinic personnel, hospital staff as well as private medical practitioners. The initial notification of cases and deaths is done on the form **GW 17/5** (see attached). This form makes provision for the notification of cases as well as deaths. It follows that any person contracting a notifiable disease and then dies from this condition should be notified twice: first as a “case” and then later as a “death”. This ensures that when estimating the case-fatality ratio, all deaths in the numerator are also included in the denominator.

Once a week the local authority summarises all the individual notifications on GW 17/5 onto two summary forms: summaries of notified cases are done on the form **GW 17/3** (see attached) and for notified deaths onto **GW 17/4** (see attached). The completed GW 17/3 and GW 17/4 are sent weekly from the local authority to the appropriate provincial office. At all the provincial offices computer systems (using EPI-INFO 6 software) have been installed where the data are keyed in and sent on disk, or via email to the National office weekly, where they are added once a month to the national data set of notifiable medical conditions, Figure 1.

Although all the political as well as technological changes in the country makes a reappraisal of the notification route necessary, it does not alter the need for this information.

Table 1: Notifiable Medical Conditions in South Africa, 1997

Code	Name
AFP	Acute flaccid paralysis
022	Anthrax
023	Brucellosis
001	Cholera
090	Congenital syphilis
065	Crimean-Congo Haemorrhagic Fever
032	Diphtheria
005	Food poisoning
HIB	Haemophilus influenza type B
984	Lead poisoning
040L	Legionellosis
030	Leprosy
084	Malaria
055	Measles
036	Meningococcal infection
002	Paratyphoid fever
020	Plague
989	Poisoning agricultural stock remedies
045	Poliomyelitis
071	Rabies
390	Rheumatic fever
037	Tetanus
7713	Tetanus neonatorum
076	Trachoma
010	Tuberculosis primary
011	Tuberculosis pulmonary
012	Tuberculosis of other respiratory organs
013	Tuberculosis meninges
014	Tuberculosis of intestines, peritoneum
015	Tuberculosis of bones and joints
016	Tuberculosis of genito-urinary system
017	Tuberculosis of other organs
018	Tuberculosis military
002	Typhoid fever
080	Typhus fever (lice-borne)
081	Typhus fever (rat flea-borne)
0701	Viral hepatitis type A
0703	Viral hepatitis type B
0705	Viral hepatitis non-A non-B
0709	Viral hepatitis non specified
033	Whooping cough
060	Yellow Fever

Figure 1: Flow diagram on the process of notification

STEP

REASON/PURPOSE

1. Diagnosis of a notifiable disease.

Establish that the condition is a threat to the community (i.e. a notifiable disease)



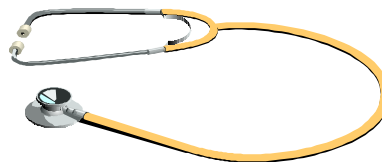
2. The person who diagnoses notifies Local or District Health Service (Form GW 17/5 - cases and deaths)

To inform Local or District Health Service of this threat to which it must mount the appropriate response.



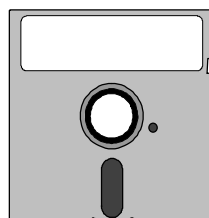
3.1 The Local or District Health Service responds.....
Immunises : traces contacts : isolates the source

Control/contain its further spread
Note : No notification, no action !



3.2 And informs Provincial Health Service on a weekly basis (Form GW 17/3 - cases, Form GW 17/4 - deaths)

Province to conduct disease surveillance and support Local or District Health Service on the basis of these data



4. Province forwards data to Head Office, by diskette monthly

National Disease Surveillance :
- trends
- high risk group
- international reporting

Legal Responsibility

The Health Act (ACT No. 63 of 1977) lists 32 diseases as notifiable. Section 32 of the Act prescribes that “the Minister may make regulations relating to the notification by medical practitioners or other categories of persons, of cases of notifiable medical conditions, including the circumstance under which and the manner in which and the person or authority to whom such notifications shall be made, the records to be kept by local authorities of such notifications and the transmission by local authorities of such notifications to the Director-General.”

Section 47 of the Act reads that “when a notifiable medical condition is prevalent within the district of a local authority, any person who has reason to believe that any other person has died within such district, shall as soon as possible report accordingly to the local authority concerned.”

Section 28 of the law prescribes that “every local authority shall, at the end of each week, transmit to the Director-General in the prescribed manner particulars of all cases of notifiable medical conditions notified to it during the week.”

2. LABORATORY-BASED SURVEILLANCE

Some diseases can be monitored more accurately through the laboratory because of the non-specificity of the clinical syndrome (e.g., most types of food poisoning). For other diseases, laboratory data act only as a confirmation of the clinical diagnosis. Diseases where confirmed laboratory results are used in surveillance are:

Rabies
Cholera
Crimean Congo Haemorrhagic fever

The South African Institute for Medical Research has more than 105 laboratories in its network serving the public sector in 8 of the 9 provinces. In addition to this network of laboratories the SAIMR conducts laboratory-based research and includes a number of national reference laboratories. The integration of the diagnostic laboratory network with reference laboratories allows the rapid integration of surveillance data using standardised methods and a single computer system. The Expansion of laboratory-based surveillance in support of the existing programme in HIV, TB and notifiable diseases would greatly strengthen this programme and provide South African policy makers with important data on which to plan the provision of health services.

3. HOSPITAL-BASED SURVEILLANCE

Hospital discharge information as well as mortality data can be used to monitor disease trends and disease burden in a particular area served by the hospital.

Hospital information can also serve as data for ambulatory and emergency room patients.

4. POPULATION-BASED SURVEILLANCE

A population-based surveillance system collects and analysis medical information in a well defined population.

Limitations to a passive disease-reporting system

The limitations to a passive system are well-known. These include under reporting of diseases, lack of representativeness of cases that are reported, lack of timeliness in reporting, lack of sensitivity and/or specificity as well as incorrect diagnosis of diseases by health personnel.

The percentage under-reporting quoted in the USA for more common diseases range from 10% to 25%. However, the main purpose of surveillance is to trigger disease-specific intervention, not the institution of non-specific control measure which can be wasteful as well as inefficient when using scarce public money.

Another important use of surveillance data is to indicate trends of a disease. When looking at the caseload of a disease as reported in a passive system, this does not provide a complete count of the occurrence of the disease nor is it likely to be a statistically representative sample. However, for most diseases it is not necessary to have complete case count to put the appropriate disease control intervention in place.

Notification of medical condition

(Sections 32, 47(i)(a) and 47(i)(b) of Act 63 1977)

Department of National Health and Population Development



Aanmelding van mediese toestand

(Artikels 32, 47(i)(a) en 47(i)(b) van Wet 63 van 1977)

Departement van Nasionale Gesondheid en Bevolkingsontwikkeling

Please print ● Where appropriate, mark the correct box with a tick (✓) ● Complete in duplicate. Original to be sent to local authority where patient was diagnosed: copy to remain in book.

Gebruik asseblief drukskrif ● Waar toepaslik, merk die korrekte blok (✓) ● Voltooi in duplikaat. Die oorspronklike word gestuur aan die plaaslike owerheid waar die pasiënt gediagnoseer is: die afskrif bly in die boek.

DETAILS OF PATIENT BESONDERHEDE VAN PASIËNT

Surname		Van		First names		Voornam	
Age	Ouderdom	Sex	Male <input type="checkbox"/> Manlik Female <input type="checkbox"/> Vroulik	Gestag	Ethnic group	Asian <input type="checkbox"/> Asiër Coloured <input type="checkbox"/> Kleurling	Black <input type="checkbox"/> Swart White <input type="checkbox"/> Blank
Residential address						Woonadres	
If resident on a farm, state farmer's name as well as name and number of farm. In other rural areas, give name of chief, induna, village, nearest hill or river, nearest school or clinic						Indien woonagtig op 'n plaas, noem die boer se naam sowel as die naam en nommer van die plaas. In ander landelike gebiede, gee die naam van die stamkaptein, induna, dorp, naaste heuwel of rivier, naaste skool of kliniek	
District				Distrik			
Tel. no.				Tel. nr.			
Name and address of employer, school, creche or other institution where patient spends much of the day						Naam en adres van werkgever, skool, creche of ander instelling waar die pasiënt 'n groot gedeelte van die dag is	
Tel. no.				Tel. nr.			

DETAILS OF MEDICAL CONDITION BESONDERHEDE VAN MEDIESE TOESTAND

Medical condition		Mediese toestand	
Date of onset	Aanvangsdatum	Date of death (if applicable)	Sterftedatum (indien van toepassing)
Possible place of infection		Moontlike plek van infeksie	
Diagnosis was based on		Diagnose is gebaseer op	
Clinical history and examination only <input type="checkbox"/> Net kliniese geskiedenis en ondersoek			
Clinical and other investigations <input type="checkbox"/> Kliniese en ander ondersoeke			

RESULTS OF INVESTIGATIONS ONDERSOEKRESULTATE

Investigation (excluding TB sputum)	Onderzoek (TB sputum uitgesluit)	Results	Resultate
			Awaiting result <input type="checkbox"/> Wag vir resultaat
			Awaiting result <input type="checkbox"/> Wag vir resultaat
			Awaiting result <input type="checkbox"/> Wag vir resultaat
If TB, give sputum result →	Microscopy Positive <input type="checkbox"/> Positief Negative <input type="checkbox"/> Negatief Awaiting results <input type="checkbox"/> Wag vir resultaat	Mikroskopie	Culture Positive <input type="checkbox"/> Positief Negative <input type="checkbox"/> Negatief Awaiting results <input type="checkbox"/> Wag vir resultaat
			← Indien TB, gee sputum resultaat

REFERRED TO VERWYS NA

Name of hospital or clinic		Naam van hospitaal of kliniek	
Patient Registration No:	Pasiënt registrasie nr.	Date of admission	Datum van opname

NOTIFIED BY AANGEMELD DEUR

Name			
Address		Adres	Profession
			Medical practitioner <input type="checkbox"/> Geneesheer Nurse <input type="checkbox"/> Verpleegster Other <input type="checkbox"/> Ander
			Beroep
		Signature	Handtekening
Tel. no.		Tel. nr.	Date
			Datum

Local authority: If a copy of this notification is to be sent to another local authority, please confirm whether you will include this notification in your weekly summaries (GW 17/3 or 17/4)

Yes Ja
No Nee

Plaaslike owerheid: Indien 'n afskrif van hierdie aanmelding aan 'n ander plaaslike owerheid gestuur word, bevestig asseblief of hierdie aanmelding by weeklikse opsomming (GW 17/3 of 17/4) ingesluit gaan word

REPLY BY LOCAL AUTHORITY ANTWOORD DEUR PLAASLIKE OWERHEID

Reply to referring doctor/nurse with brief report of further findings and management		Antwoord aan verwysende dokter/verpleegster oor verdere bevindinge en hantering	
Signature	Handtekening	Date	Datum
Tel. no.		Tel. nr.	

GW 17/5

APPENDIX C :

Samples of the following forms are presented :

1. Road to Health Card
2. Family Planning : Consultation Card
3. "Attender" Card

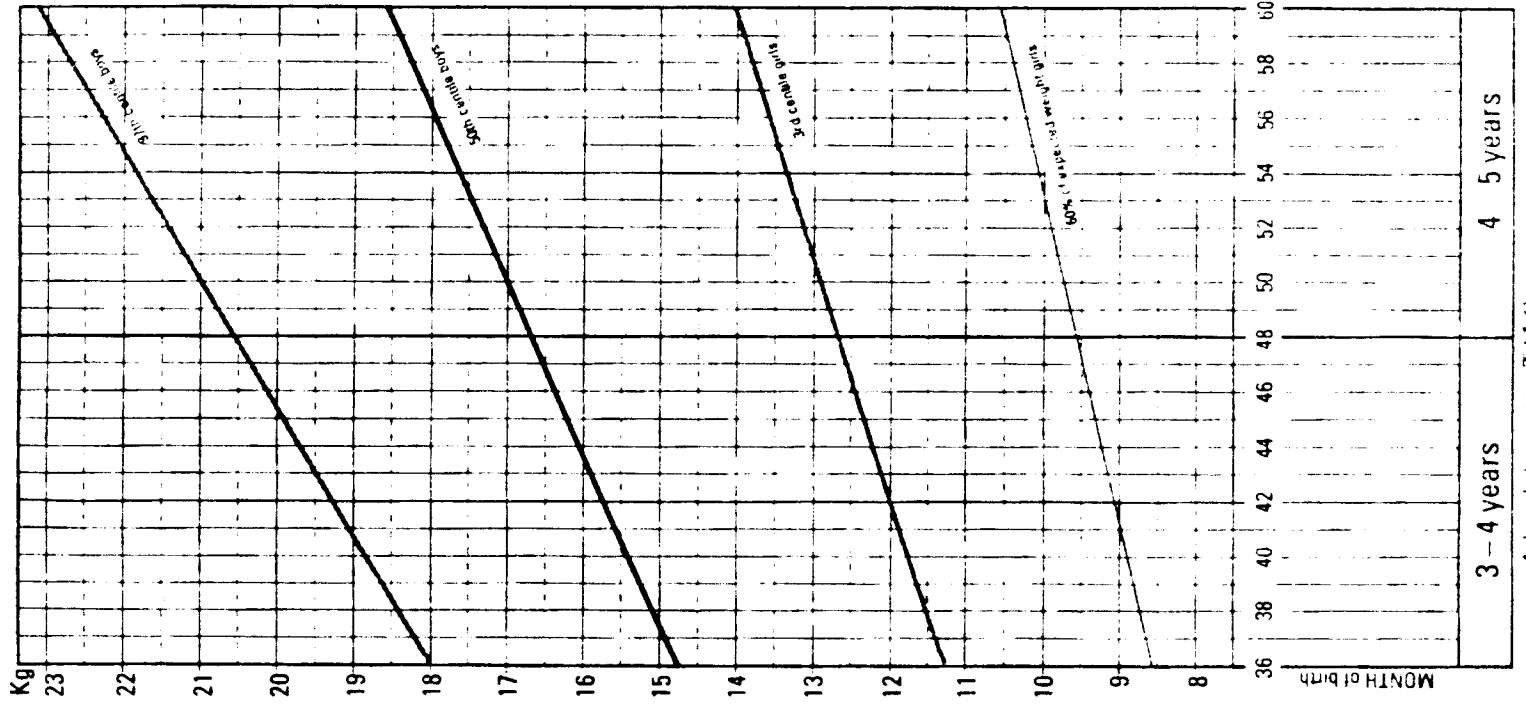
Road to Health Chart



Clinic 1 _____ Clinic 2 _____
 Address _____ Address _____

IMPORTANT: always take this card with you when you visit any health clinic, doctor or hospital, and present the card on school entry.

Child's name _____ boy girl
 Date of birth _____ Place of birth _____
 Birth weight _____ Birth length _____ Birth head circumference _____
 Problems during pregnancy / birth / neonatally _____
 APGAR 1 min. _____ Gestational age (wks) _____ Serology _____
 APGAR 10 min. _____
 Mother's file numbers - Antenatal _____ Delivery _____



Mother's name _____
 Father's name _____
 Caretaker if not the mother _____
 Where does the child live? _____

How many children has the mother had? _____
 Number born _____ Number alive now _____

SPECIAL NEEDS (circle if answer becomes YES)

Was the baby **less than 2.5kg at birth**? yes no
 Is this baby a **twin**? yes no
 Is this baby **bottle fed**? yes no
 Does the mother need more **family support**? yes no
 Are any brothers or sisters **underweight**? yes no
 Are there any other reasons for **taking extra care** for example - tuberculosis, single parent etc? yes no

Vision screening (4 1/2 - 6 yrs) _____
 date _____ date _____
 Result L: _____ R: _____
 Result L: _____ R: _____
 Hearing screen (7 to 9 months) _____
 Manchester _____
 Rattle used _____

CARD GIVEN AND MOTHER TAUGHT BY _____

ORAL REHYDRATION DATES Taught _____ Used _____
 Taught _____ Used _____

TUBERCULOSIS SCREENING

Heal / Mantoux / Tine _____ Date _____
 Date _____
 TB contact _____
 TB notified _____

IMMUNISATIONS	PRIMARY		BOOSTERS	
	Date given	Signature	Date given	Signature
BCG 1			2	
0			4	
Polio 1			5	
2				
3				
DTP 1			4	
2			DT	
3				
Hep B 1				
2				
3				
Mear 1			2	
Other 1			3	
2			4	
3			4	
Vit A 1			5	
2				
3				

Remember to discuss child spacing

Acknowledgement to T.A.I.C. (Training and In-Service)

GW 8.123

B "ATTENDER" CARD

DATE	(37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50)
(JAN) (FEB) (MAR) (APR) (MAY) (JUN) (JUL) (AUG) (SEP) (OCT) (NOV) (DEC)	(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)
	(11) (12) (13) (14) (15) (16) (17) (18) (19) (20)
	(21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31)
CLINIC	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
ATTENDER	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
CLIENT	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
(M) (F)	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
(W) (C)	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
(1) (2)	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
(3) (4)	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
CHILD HEALTH	(1) (2) (3) (4) (5) (6) (7) (8) (9) Prob HI (Y) Doctor (Y)
TYPE (Con) (Am) (He)	REFERRAL (1) (2) (3) (4) (5) (6) (7) (8) (9) (MED) (SOC)
MTR STAT (BF) (So) (G-G) (G1) (G2) (G3) (KW)	SCHEME (1) (2) (3) (4) (5) (6) (7) (8) (9)
SCHEME (1) (2) (3) (4) (5) (6) (7) (8) (9)	CHARGE (0) (1) (2) (3) (4)
IMMUNISATION	REACT (Y) RUB (Y) HEPB (1) (2) (3)
DPT (1) (2) (3) (4) (5) (6) (7) (8) (9)	DT (1) (2) (3) (4) (5) (6) (7) (8) (9)
POLIO (1) (2) (3) (4) (5) (6) (7) (8) (9)	BCG (M12) (M1) (M2) (M3)
MEASLES (1) (2) (3) (4) (5) (6) (7) (8) (9)	TETANUS (1) (2) (3) (4) (5) (6) (7) (8) (9)
FAMILY PLANNING	(1) (2) (3) (4) (5) (6) (7) (8) (9) REFERRAL (MED) (SOC)
EXAM (Y) CONS (Y) Dr (Y) IUCD (FT) (CH) (HE) (PA)	
Triphasil () Norello () Microval () Ovarl ()	
Maryalon () Quantity (1) (2) (3) (4) (5) (6)	
Dopo Provera () Nur-isterate () Condoms (1) (2) (3) (4)	
PRESCRIBER'S CODE	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
	(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
P.M.C.	(1) (2) (3) (4) (5) (6) (7) (8) (9) Dr (Y) Ref (Y) Emergency (Y)
Tb Rx (1) (2) (3) (4) (5) (6) (7) (8) (9)	S.T.D. (1) (2) (3) (4) (5) (6) (7) (8) (9) Referral (Y)
Re-infection (Y) Rx failure (Y) Lab info (Y) Discharged (Y)	
PSYCHIATRIC	(1) (2) (3) (4) (5) (6) (7) (8) (9) Dr (Y) Ref (1) (2) (3) (4)
GERIATRIC	(1) (2) (3) (4) (5) (6) (7) (8) (9) Referral (MED) (SOC) (P-M)
Dr (Y) Foot (Y) Med (Y) Nurs (Y) Script (Ch) (Ac) (Ac)	
ANTE NATAL	(A) (P) (1) (2) (3) (4) (5) (6) (7) (8) (9) Dr (Y) Referral (Y)
POST	

Contact No. _____

Surname: _____

First Names: _____

YYYY MM DD

D.O.B.: _____

S: _____

CG: _____

Address: _____

Code: _____