Exploring information use and information culture at health facility level in Cape Town, South Africa

A case study and discourse analysis

Cand. Philol. Thesis

Inger Elise Østmo

February 2007
Abstract

This research is about health facility managers in Cape Town, South Africa – how they collect and use information for managing their health units and how an information culture is expressed in the facility management and work practices. Through an in-depth case study in 5 health facilities in Cape Town, work practice and management at health facility level is explored and analyzed according to themes related to health information systems, management, organizational change and organizational culture.

The research is also about the “Health information systems in developing countries” discourse and how through use of language a certain reality is constructed to picture information use and information culture at facility level, as seen from the researchers’ perspective; a ‘reality’ I found differed from the ‘reality’ as experienced and described by the facility managers.

Discourse analysis is a methodology within qualitative research concerned about the constructive effects of language – how talk and text – in a certain context constructs a social reality. I found it useful to explore the HIS discourse from this perspective. To conduct the discourse analysis, a set of texts from the discourse was selected from the abundance of literature concerning health information systems in developing countries in general and the HISP project in particular. Key concepts were identified and analyzed.

The results from the case study and discourse analysis are then combined in the discussion – to shed light on the discussion of information culture and use of information for decision making and management, focusing on the facility level in Cape Town.
Preface

My journey to this thesis and my background before I started my studies at the University of Oslo is rather different from most of my fellow students. I am educated a professional social worker and have several years of experience as a practitioner; a fact that might have had an impact on my choice of research approach. I have also worked many years in management and planning of social work services before I went into an early retirement.

My studies at the university started at the Department of linguistics in “Logic, language and information” (SLI). When looking for a topic for my Cand. Philol. thesis, my interests were among many, decision making and evaluation in organizations as an integrated part of the planning processes. In this domain, collection and use of information plays an important role. I had to look outside SLI to find what I was looking for and I found it in the Systems Group at the Department of Informatics.

I joined the course the "Information systems development in organizations” and through a group project, I got introduced to the HISP project in South Africa. HISP wanted an evaluation of their project, looking at management and use of information. This was exactly what I was looking for. The possibility to work within a third world context made this even more interesting. From a position as a retired social worker, for several years studying for my own interest of it, I could see a possibility to apply my professional knowledge and practical experience on new ground, and suddenly I found myself being a part of an interesting international research.

My sincere thanks go Herman Ruge Jervell, my supervisor at the Department of Linguistic and Nordic studies for his advice and generosity to accept my research proposal. I also want to thank my advisor at the Systems Group, Judith Gregory for her invaluable inspiration and advising through the process of developing this research and thesis and to Jens Kaasbøll for reading my thesis and giving valuable feedback. I will also thank the people in Cape Town, Gavin Reagon at UWC, who acted as an ‘on site’ external advisor and the information managers in Cape Town for information, advice, and co-operation. Special thanks to Colleen Knipe-Solomon for showing us the ‘real’ Cape Town and sharing with us her knowledge and experience of the free South Africa.

My thanks also goes to my ‘office-mates’ at Forskningsparken: Emilio Mosse, Honest Kimaro, Leopoldo Nhampossa, Marisa D’Mello, Patrick Burasa, Shegaw Mengiste, Vincent Shaw and Jyotsna Sahay, for companionship, encouragement and support. Last, but not least, I thank my husband for support, encouragement and patience throughout my master thesis project, and for going with me to Cape Town to do the field work and experience South Africa.

Oslo February 2007
Inger Elise Østmo
Table of contents

Abstract.......................................................................................................................... i
Preface............................................................................................................................ ii
Table of contents.......................................................................................................... iii
List of figures.................................................................................................................... iii
List of tables.................................................................................................................... vii
List of photos................................................................................................................... viii

1 Introduction ................................................................................................................ 1
  1.1 Background .............................................................................................................. 1
  1.2 Research problem .................................................................................................... 1
  1.3 Research questions ................................................................................................. 2
  1.4 Research domain and motivation ......................................................................... 3
  1.5 Research approach and methods .......................................................................... 5
  1.6 Expectations and possible contributions .............................................................. 5
  1.7 Limitations .............................................................................................................. 6
  1.8 Who can read this? ................................................................................................. 6
  1.9 Structure of thesis ................................................................................................. 7

2 Theoretical perspectives and literature review ....................................................... 8
  2.1 Organization theory ............................................................................................... 8
    2.1.1 The organization .............................................................................................. 8
    2.1.2 Management and decision making ................................................................. 10
    2.1.3 Organizational change ................................................................................. 12
    2.1.4 Organizational culture and information culture ......................................... 14
  2.2 Health management and health information ...................................................... 17
    2.2.1 The different managerial levels and different information needs .......... 18
    2.2.2 Different types of data .................................................................................. 20
  2.3 Classification, work practice and the problem of representation ..................... 20
  2.4 Health information systems ................................................................................ 21
    2.4.1 Systems development and participation ...................................................... 22
    2.4.2 HIS in developing countries ....................................................................... 23
  2.5 Evaluation of health information systems ............................................................ 24

3 Research settings ....................................................................................................... 27
  3.1 South Africa ......................................................................................................... 27
  3.2 Health care services in South Africa ..................................................................... 28
  3.3 Health Information System Program – HISP ..................................................... 30
  3.4 District Health Information Software – DHIS ...................................................... 31
  3.5 Cape Town - Health and Health Information Management ............................ 34

4 Research approach ................................................................................................... 36
  4.1 Introduction .......................................................................................................... 36
  4.2 Interpretive research ............................................................................................. 37
  4.3 Research approach and methodology ................................................................ 38
4.3.1 Case study .................................................. 38
4.4 Research methods in field research ........................................ 39
4.4.1 Observation .................................................. 39
4.4.2 Interviews .................................................... 40
4.4.3 Secondary documents ........................................... 41
4.4.4 Research documentation methods .................................. 41
4.5 Organizational culture and context ...................................... 41
4.6 Modes of analysis .................................................. 42
4.6.1 Case study analysis ............................................ 42
4.6.2 Discourse analysis .............................................. 42
4.7 Validity and reliability ................................................ 43
4.8 Limitations related to research methods ................................ 44
4.9 Ethics .............................................................. 45

5 “Health information systems in developing countries”- .................. 46
5.1 Why discourse analysis? .............................................. 46
5.2 What is this discourse about? .......................................... 47
5.3 The different categories of texts and their contributions .................. 48
5.4 The general discourses of organization, health management and health information systems in developing countries ............... 51
5.5 The HISP discourse .................................................. 52
5.6 The actors ............................................................ 56
5.6.1 South Africa ..................................................... 57
5.6.2 Research ......................................................... 58
5.6.3 Donors, NGO’s and other international organizations ............ 59
5.6.4 The actors as ‘voices’ ........................................... 61
5.7 Analysis ................................................................... 62
5.7.1 The concepts ...................................................... 64
5.7.2 Use of information for decision making .............................. 76
5.7.3 ‘Local’ use of information ....................................... 81
5.7.4 Information Culture ............................................. 84
5.8 How discourse create the identity of the facility manager .......... 88
5.9 Summary .............................................................. 89

6 Case study – context and voices of the facility managers .............. 90
6.1 The health services organization in Cape Town ....................... 90
6.2 Heath information management in Cape Town .......................... 92
6.3 Health information software development ................................ 100
6.4 Organizational change .................................................. 104
6.5 ICT as a tool for change .............................................. 107
6.6 The health facility ...................................................... 108
6.6.1 Management and decision making power .......................... 110
6.6.2 Patient management .............................................. 112
6.6.3 Staff ................................................................ 114
6.6.4 Feedback .......................................................... 116
6.6.5 Training ............................................................ 118
6.7 Data collection and information flow ..................................... 119
6.8 Use of information ...................................................... 125
6.9 Information culture ..................................................... 129
6.10 The facility manager ..................................................... 130
7 Discussion and conclusions ................................................................. 134
  7.1 The health facility in Cape Town in context ........................................ 135
  7.2 Facility management, work practice and information needs ...................... 137
    7.2.1 Management in the health facility .............................................. 137
    7.2.2 Work practice, data collection and information needs ..................... 138
    7.2.3 ‘Local’ use of information for decision making .............................. 140
  7.3 Information culture at facility level .................................................. 143
  7.4 Health Information systems in developing countries - concepts and themes ... 144
    7.4.1 Decentralization and empowerment ............................................ 145
    7.4.2 Participation and ownership .................................................... 146
  7.5 Methodological approach .................................................................... 148
    7.5.1 What has not been discussed .................................................... 149
  7.6 Conclusion and further research ......................................................... 149

8 Bibliography ......................................................................................... 151

9 Appendixes .......................................................................................... 160
  Appendix A: Permission request ............................................................. 160
  Appendix B: Letter of approval ............................................................... 161
  Appendix C: Letter to facility managers .................................................. 162
  Appendix D: Interview guide ................................................................. 163
  Appendix E: Operational plan Central district 2004/4 ............................... 166
  Appendix F Operational Plan Tygerberg East ......................................... 170
  Appendix G Compaints and Compliments .............................................. 174
  Appendix H Labour relations ................................................................. 175
  Appendix I Health services business plan 2002/2003 ................................ 176
  Appendix J: Joint priorities, indicators and targets ................................... 177
  Appendix K: Fieldwork log in Cape Town .............................................. 178
List of figures

Figure 2.1 Basic processes in an organization (Vanebo 1983)..........................11
Figure 2.2 Conceptual frameworks for analysis of information culture...............16
Figure 2.3 Managerial levels and management functions ..............................18
Figure 2.4 The information pyramid.........................................................19

Figure 3.1 Map of South Africa.................................................................27
Figure 3.2 Chronology of important events in the HISP case ..........................30
Figure 3.3 HISP global network in 2004....................................................31
Figure 3.4 Screenshot of the DHIS v 1.3 ‘front page’ ..................................32
Figure 3.5 Data entry screenshot DHIS ......................................................33
Figure 3.6 The Provincial and Local Health organizations in Cape Town ..........35

Figure 4.1 Underlying philosophical assumptions (Myers 1997) ....................37

Figure 5.1 The discourse dialogue and spiral effect....................................48
Figure 5.2 Selection of HISP and related discourse in a timeline ...................54
Figure 5.3 Web of actors in the “Health information systems in developing countries” Discourse ............................................................55

Figure 6.1: Cape Town health districts and population 2003.........................90
Figure 6.2: The two health service organizations in Cape Town ..................92
Figure 6.3 Submission rate – feedback to facility from CHSO .......................96
Figure 6.4 Data and information flow in the Cape Town Metropole ................98
Figure 6.5 Health services and health information organizations in Cape Town ..99
Figure 6.6 Patient treatment and data collection process through one facility (combined) .................................................................120
List of tables

Table 4.1  Criteria for selection of facilities ........................................39
Table 5.1  Text categories and their contribution ..................................50
Table 5.2  Discourse table ...............................................................65
Table 6.1  Information reporting systems handled by LA ....................93
Table 6.2  Routine monthly report PHC services – for combined services –
developed by Local Authorities ..................................................94
Table 6.3  Monthly immunisation statistics form from Patient Folder Application ......101
Table 6.4  Routine monthly report compiled from Patient Folder Application (PFA) ...102
Table 6.5  Forms facilities submit monthly from PAWC and LA facilities ...........124
Table 6.6  TALI Tool – assessment at facility level ..................................128
Table 6.7  Assessment measurements form for baby feeding and nutrition ..........129
List of photos

Photo 3.1 Cape Town at the foot of Table Mountain.................................34
Photo 3.2-3 Cape Town and the two ‘Waterfronts’.................................34
Photo 6.1 People on ARV treatment celebrate......................................104
Photo 6.2-3 Clinic and day hospital in Cape Town..................................109
Photo 6.4 ‘All-in-one’ pharmacy and office...........................................109
Photo 6.5 Patient folder..........................................................................113
Photo 6.6 Patient folders in reception......................................................120
Photo 6.7 Patient day register.................................................................121
Photo 6.8 Tally sheet for headcount.........................................................122
Photo 6.9 The working place – baby weighing scale, patient folder and tally sheet...123
Photo 6.10 Cure Rate statistics displayed on the wall in facility....................126
Photo 6.11 White board with statistics in facility.......................................126

Photographer for all photos, except photo 6.1 - the author
1 Introduction

1.1 Background

The World Health Organization (WHO) has long identified health information systems as critical for achieving health for all by the year 2000 (Mahler cited Sauerborn and Lippeveld 2000, p. 1).

In the planning and management of health care services in developing countries, relevant and correct information is seen as one of the most important elements to achieve the goal of delivering equitable quality health care to the people. A great number of articles, reports and papers subscribe to this view and describe, explore and analyse health information systems (HIS) from different perspectives. Reading this literature was a part of my introduction to the HIS – field and a preparation for my research fieldwork.

Since 1995, the Health Information System Program (HISP) has been an ongoing action-research project in South Africa, and later also in other developing countries. This project is a collaborative research and development program comprising universities and national/provincial health administrations in several countries; the Universities of the Western Cape (South Africa), Oslo (Norway) Eduardo Mondlane (Mozambique), Dar es Salaam (Tanzania), and Addis Ababa (Ethiopia). By developing and implementing a computer-based district health information system (DHIS), HISP aims at supporting decision making in health management. After almost 10 years of development and implementation, evaluation of the use of DHIS was requested. This project was the framework within which I was introduced to the health care services and HIS development and research in Cape Town, South Africa.

The initial aim and focus of my thesis was to investigate and evaluate the use of information at district and facility level from a managerial perspective. The fieldwork results showed, among other things, an apparent contradiction to the situation analysis described in the literature. While the health facility managers often were described as not knowledgeable and without motivation to use information for decision making, I found the actual situation different and with more nuances. These facts triggered my curiosity and influenced my approach in the fieldwork to be more focused on the facility managers, their working situation and their responsibilities in managing the facility. I also found it interesting to see how the “information systems in developing countries” discourse, through the description of local level in PHC, constructed a certain ‘reality’ that did not coincide with my field work results. This led to an extension of my thesis to include an analysis of the “health information systems in developing countries” discourse.

1.2 Research problem

South Africa has since the end of the apartheid regime in 1994, gone through a major restructuring of the health sector, from a fragmented and centralized service to a decentralized, district-based primary health care oriented system (Williamson, Stoops et al. 2001), which is recommended as the way to go to develop comprehensive and equitable health services. To achieve this, a change in the existing vertical health information systems was needed with the aim of developing a district health information system (DHIS) to support decision making in health management at all levels.
The HISP vision is:

( ...) to support the development of an excellent and sustainable health information system that enables all health care workers to use their own information to improve the coverage and quality of health services within our communities.

The idea is that correct, reliable and timely data will give information that will be used to inform decisions in planning and management, and the action-research approach with participation from local people, would entitle local empowerment and create a feeling of ownership. The DHIS software was regarded a success in South Africa and in 1999 DHIS was adopted as a national standard, and it was decided to be rolled out to the whole country.

Still, after many years of development, implementation and training, it is repeatedly claimed by researchers and HISP actors that the available information is not utilized as planned for:

However, it appears that very little use has been made of the tools available to adapt the computer software programme to local use as well as accessing available data/information for informed decision making (Stoops 2000).

There has been discussion on the importance of developing a culture of information use (Williamson and Stoops 2001)

Also in many research studies and papers on health information and management, the authors argue that decisions are made by managers in the health services not using available information, and it is pointed to the need for building an information culture:

In fact, poor use of information for evidence-based decision making is probably one of the main causes of the current lack of linkages between individual care and public health systems (Lippeveld 2001).

These claims caught my interest. What could be the reasons for this? There was also apparently a contradiction in the description of the local level in PHC as unknowing and not using information on the one hand, and the story of a successful HISP project on the other hand, which had been implemented with the aim of empowering the local people and creating an information culture.

1.3 Research questions

Focus in the literature around health information systems had been very much on the district level, but I could find little field research at facility level confirming this lack of information use, and I thought of investigating both the district and facility levels. I wanted to find out more about this and about the conditions for management at local levels: What kind of information was available to the facility managers? Did they use it? If not, why? Was this information actually appropriate in order to make decisions on their managerial level? How, in more depth was ‘information culture’ defined and understood? ‘The need for building an information culture’ suggested that there was no such culture present before the HISP initiative. My first research question was: “How is information used to inform decision making and management at district and facility level?” As ‘local’ in the literature often denoted both district and facility level, this seemed an interesting approach and a comparison between the two levels was in my mind. After a short time in Cape Town, I realised the dimensions of the health services organizations at both Local and Provincial levels, and
constrained the research area to focusing on the facility level as this level is the main provider of PHC data.

An issue that became central during the field work was: What decision making power do the facility managers have in the task of managing their health unit? I was asking what would be the criteria for saying that an information culture is present at facility level and also if we can assess whether an information culture exists by only looking at the information provided by the formal routine information systems? These reflections led to my final research questions:

How is information collected and used to inform management and decision making at facility level?

Does an information culture exist at facility level in PHC in Cape Town?

The research questions generated the following questions to be answered by my field research:

- What are the responsibilities and managerial tasks for the facility manager?
- What kind of decisions is the facility manager able to make, that is what decision making power does he/she have?
- What kind of information will be needed to make those decisions?
- Did the facility managers use information?
- What kind of information and for what purposes?
- How to conceptualize ‘information culture’ in PHC, and
- Was there evidence of an existing information culture in the local health care to build on?

1.4 Research domain and motivation

Evaluations of information collection and use in PHC have been made in South Africa during the last years using different tools. Some initiatives have been taken from inside the HISP project and partners. Here the frame of reference has mainly been the DHIS (Stoops 2000; Williamson, Stoops et al. 2001; Shaw 2002; HISP 2003; HISP 2003a), and the question has been if the information provided by this application is used for decision making or not, and/or there has been an assessment of “levels of information use”, a concept developed and introduced by HISP (Shaw 2002). The data flow and data quality has been very much the focus in this research and literature. This delimitation in assessing information use leaves out greater parts of the working reality for a facility manager.

Within the HIS in developing countries discourse, South African actors play an active role. Health Systems Trust, SA (HST) and their Initiative for Sub-District Support (ISDS) have had different approaches to assessment than the HISP discourse, looking at the improvement of quality of care and health information systems with a somewhat wider perspective, including
roles and relationships in the context in which the information system is embodied (Lumba 2002; Barron and Monticelli 2003).

PHC in the Cape Town context was provided by two health administrations (Provincial and Local Government) and at facility level different information systems software were used to collect patient data. This fact added complexity to the assessment of information flow and use in the city.

A contemporary research initiative in Cape Town (proposal) with the title: “Evaluation of the factors affecting the level of use of routinely generated health information by District Health Managers in the Cape Town Metropole” described the background and problem that they wanted to address:

While internationally it has been known for some time that health managers are almost universally poor users of information, very little research on the reasons underlying this phenomenon has been done (UWC 2001).

From a list of research objectives, I found the following to coincide with my interests:

- To evaluate the potential usefulness of the available information, for proactive planning and managing by district health managers.
- To evaluate the present level of use of routine information by district health managers.
- To determine the barriers to the use of information in proactive managing and planning.

This proposal was focusing on the district managers, but at that time I did not have a clear picture of the levels and organizational structures. After a few weeks in Cape Town, when I realised the outreach of the primary health care delivery and the health information systems and decided to focus on the facility level, my interests and curiosity were the same, only the level of focus had changed.

I found the facility level the most interesting for several reasons: This was the place where people met the PHC services and also the place where most of the PHC information was collected. There seemed to be an almost unified opinion that health workers and facility managers did not see the value of or did not use information for management. I wanted to meet those people and get to learn more – and perhaps understand why, if this really was the case; in short: I wanted to let the facility managers tell their story. This, in turn, gave direction to my research approach and methods for collecting data.

To find some answers to my research questions and to look for information use and an information culture in the facilities, a broader perspective seemed the best way to go to me. I wanted to look beyond the DHIS as an information source and also include the ‘invisible’ factors in the organizational culture to identify types of information use that might not be recognized in DHIS evaluations. This would also include environmental issues that were not directly information-related. Psychological and sociological factors are important, and concepts like attitudes, roles and relationships between actors in the organization have to be explored. The question of power, both decision making power and the power to classify what is work (i.e. what to count and how to count in the information system), and the balance between using information for control and/or planning and management would also be of interest.
Two other Norwegian master students were going to Cape Town for fieldwork at the same time period as I did, and they had the same research interests. We did, however, choose different evaluation approaches but could benefit from being there at the same time and exploring the same field.

During the stay in Cape Town colleagues at the University of Western Cape and information managers in Cape Town at both Local and Provincial level were valuable resources in sharing local knowledge and giving insights and input for my fieldwork.

1.5 Research approach and methods

The objective of my field work study in Cape Town was to get an understanding of the everyday work and challenges for the facility managers in managing their units; to find out about their data collection and to look for use of information and evidence of an ‘information culture’ at this level. Different studies had been using audits or surveys (Reagon, Day et al. 2003; Reagon, Day et al. 2003; Jakobsen and Johansen 2004). I wanted to select a few facilities and go more in-depth in my investigations. I wanted to meet the people at grassroots level on their arena and let them tell how they think about these issues. I wanted to understand and describe rather than to prove anything, so a qualitative, interpretive study seemed to be the best approach, using participant observation, followed up by semi-structured interviews with the facility managers. Participation in meetings and interviews with key people in the City and Province Information Management was also important to understand the health information systems and data flow in Cape Town.

On the days of observation, I spent a working day in the facility, partly observing, partly talking to the health workers and asking them about their work. I also took photographs and made simple drawings from the sites. The interviews with the managers took place a few days after the interviews. I had developed an interview guide with topics that I wanted them to tell about. The interviews were tape-recorded and after my return to Norway transcribed verbatim. Reviewing the transcripts and the findings there for analysis, led to an extension of the literature review of HISP and related literature and later to the idea of a discourse analysis of the literature I had been reading.

My research has been performed in 4 phases:

1. Preparation through courses and literature studies in front of the field work.
2. 2 months field work study in Cape Town with meetings, interviews and observations.
3. Continued literature review and discourse analysis after returning to Norway.

1.6 Expectations and possible contributions

When I went to Cape Town for the field work, I felt excited about the possibility to be part of an international project, to meet with the people at grass-root levels in South Africa and to learn more about the research area that I was entering. Africa and the people and life in South
Africa was unknown to me, as was the health sector and the health care service delivery, despite the amount of literature that I had been reading. From some of the texts I could expect to find every health facility equipped with a computer and the DHIS installed; skilled and enthusiastic staff, and a smooth working information system. On the other hand, the same people had also been described as not understanding the importance of information or using it for decision making, so I was curious to meet with the people and find out for myself. The challenge was to explore why, if so, the provided information was not used for management.

The picture that emerged during my 9 weeks in Cape Town was interesting and different from what I could expect. My aim had been to get a better insight in the research area on grassroots levels. I was hoping to find some answers to my research questions; answers that might contribute to a better understanding of these issues among the researchers involved in HISP; insights that might facilitate the further development and implementation of health information systems in developing countries and provide new questions to be explored.

Through the research methods chosen, I got a rich insight in the situation for facility management in PHC in Cape Town. In describing and discussing work practice and information needs at facility level from the perspective of the facility managers I contribute to a better understanding of management and work practice in the health facility and also to a better understanding of the existing ‘information culture’. The discourse analysis revealed how ‘reality’ was described and interpreted differently from the different actors in the HIS domain and how this might influence research approaches.

Although HISP was a main part of the environment for my field study in Cape Town, I was not a part of the HISP team and I felt free to explore as an ‘outsider’ and to do the field work study ‘my way’, asking the questions that I felt important to answer my research questions.

### 1.7 Limitations

The main constraint in this research has been that of time shortage. For the field work in Cape Town I had 2 months at my disposal, but the time period turned out to be too short to settle down, to get to know the field sites and organizations in Cape Town and to do all the field visits I would have liked to do. The number of facilities was sufficient but I would have preferred to follow up by a second observation or interview on some of the sites.

Although a computerized information system has been the point of departure for my research, the technical issues of information systems, i.e. computers, programming and information technology have not been my main concern. Developing information systems is more than computers, which is also acknowledged in the HISP projects, where education and training are important elements in the process. The facilities I visited had for example limited access to computers and only one of them was able to submit a monthly report to higher authorities electronically. Even though ICT does play an important role in the organisational change in South Africa, my focus has been on the situation and context in which the implementation of the information system takes place.

### 1.8 Who can read this?

This thesis is intended for researchers, master students, health information managers and developers that have interest in and/or are studying health information systems, their
development, implementation and effect in developing countries. As focus in the thesis is not only on management and information use, but also on language use and how discourse constructs ‘realities’, it is my wish that the discourse analysis will be of interest to a wider audience, especially to my colleagues in the department of linguistics. The results might also be of interest to the health care workers and managers who are the experts in health care delivery and everyday data collection. The thesis does not require specific knowledge about computers or information systems, but can be read by anybody who has a general interest in development in a third world context.

1.9 Structure of thesis

The rest of this thesis is structured as follows:

Chapter 2 – presents theoretical perspectives and concepts that I have drawn upon in my research study and analysis – from organizational theory and management, information systems theory and evaluation.

Chapter 3 – describes the research settings, background information about South Africa and an overview of the structures of the health services and the health information management, including a short presentation of the HISP project.

In Chapter 4 – I describe my research approach, the methods I used and why these were chosen.

In Chapter 5 – I give an analysis of selected texts within the “information systems development in developing countries” discourse, from the time period 1978 - 2005. I explore how ‘reality’ in the introduction of a decentralized PHC and the importance of information and information systems are described in the literature by different actors and discuss possible consequences for further research.

Chapter 6 – presents my findings from the case study. The health facility is described in its organizational context and the results from observations and interviews will be treated as texts and analysed in relation to theory and the concepts and themes introduced in chapter 5.

In Chapter 7 – I discuss the results from the case study and discourse analysis in relation to the research questions and give some conclusions and recommendations for future research.
## 2 Theoretical perspectives and literature review

Information systems development and implementation in organizations involves several research areas such as information theory, organization theory, computer science, cultural studies and politics, and researchers use many different approaches and combination of theories to gain insights in information systems phenomena. Avison and Myers (1995) discuss the role of an anthropological perspective on information technology and organizational culture and the use of anthropological concepts to analyze the social world in which IS are developed and used (Avison and Myers 1995, p. 46). They claim that “… no single method or discipline can capture the richness and complexity of organizational reality, and that a diversity of methods, theories and philosophies is required.”

In this thesis I will draw upon theories about organizations and human behavior in organizations without using complete theoretical frameworks, but I will select parts from different approaches concerned with management and decision making in organizations, organizational and information culture, and information systems development in developing countries.

### 2.1 Organization theory

#### 2.1.1 The organization

Many attempts have been made trying to define and understand what exactly constitutes an organization from the simple one: “people coordinating their activity to reach shared goals”, to a more complex description of an organization as: “an open, complex system, in dynamic interaction with multiple environments, attempting to fulfil goals and perform tasks at many levels and in varying degrees of complexity…” (Schein 1982, p. 228). The different ‘schools’ within organization theory have been based on basic beliefs on human nature, and the main focus in the models and theoretical framework reflects this. Our beliefs or assumptions are based upon past experience, cultural norms, and what others have taught us to expect. To understand organizations it is therefore important to understand how people in the organizations function (Schein 1982). In the field of organizational psychology researchers have been interested in the study of workers motivation, incentive systems and inter-group relations, and also the organization as a whole.

The ‘classic approach’, hosting theories like Scientific Management (Taylor 1923 cited Katz and Kahn 1978), the Administrative approach (Fayol) and the Bureaucratic approach (Weber), were emphasizing the formal structure and the technical aspects of the organization. These schools are criticized for viewing man as ‘machine’, who has to be motivated from outside, and to be controlled from the manager to work towards the goals of the organization. Production and information flow, rational choices and systematic use of scientific methods were tools to create the perfect, rational organization. The people in the organization and their feelings were not taken into account as an important part of the production process; on the contrary, this could be disturbing elements.

What is known as the Human Relations (H-R) approach came as a critique to the classic schools. In the well known Hawthorne experiments, the researchers found significant coherence between peoples working environment, physical and psychical, and their productivity (Mayo 1933 cited Katz and Kahn 1978). They also looked into group norms and
social relations, more interested in the informal than the formal structures of an organization, and the relations between groups, regarding social needs as the most important motivating factor in the work situation. Like the classical schools, H-R also were criticized for the one-sided focus on one aspect leaving others out.

The organization as a socio-technical system


The theory X assumptions are:
- People are inherently lazy and must, therefore, be motivated by outside incentives.
- People’s natural goals run counter to those of the organization; hence they must be controlled by external forces to ensure that they work toward organizational goals.
- Because of their irrational feelings, people are basically incapable of self-discipline and self-control.

The theory Y assumptions are:
- The individual seeks to be mature on the job and is capable of being so, in the sense of exercising of a certain amount of autonomy and independence (…)
- People are primarily self-motivated and self-controlled; externally imposed incentives and controls are likely to be threatening and to reduce the person to a less mature adjustment (Argyris, 1964).
- There is no inherent conflict between self-actualization and more effective organizational performance. If given a chance, employees will voluntarily integrate their own goals with those of the organization.

Whereas theory X is described as a cynical view of human nature, theory Y is a more idealistic view. What is known as the Scandinavian approach in information systems development, build on the socio-technical approach and was grounded in the Scandinavian democracy. Here, the motivation was to increase workplace democracy by giving the member of an organization the right to participate in decisions that are likely to affect their work (Sjöberg 1996; Gregory 2003).

The organization as a complex open system

Systems theory sees organizations as complex and open systems. A system will be defined as “a unit, consisting of a set of elements that are interconnected and interact with each other and the environment” (Bertalanffy in Skjørshammer, Kaasa et al. 1987). The basic idea of systems theory is that a system is an integrated whole where the parts are interconnected through networks of mutual relations. A system is more than the sum of its parts as a person is more than the sum of its cells and the society more than the sum of its people.

Open systems theory emphasizes the close relationship between a structure and its supporting environment. One critical basis for identifying and understanding social systems is therefore their relationship with the energy sources for their maintenance. For almost all social structures, the most important maintenance source is human effort and motivation (Schein
The relation and adaptation to external environment is also crucial for the system to survive and develop. Employees will not only be members of the organization which employs them, but they are also members of society, other organizations, unions, consumers groups and so on. From these various roles they bring with them demands, expectations and cultural norms (Schein 1965, p. 89).

The ‘sets of elements’ in a system may also be seen as sub-systems, and the properties will be the same for each of the sub-systems. Various sets of sub-systems in an organization are categorized differently by different researchers. Katz and Kahn (1978) suggest 5 sub-systems or functions in an organization (each of which again may consist of sub-systems):

- Production - the purpose of the organization
- Support - institutional function
- Maintenance - humans and equipment
- Adaptation - changing environment, secure org. survival
- management - planning, control, coordination

The systems property of inter-dependency of sub-systems, and the idea that movement in one part of the system lead to action in other parts of the system has implications for introducing change in a system/organization. Both the other parts (sub-systems) and the whole system will be influenced by change in one of the sub-systems.

Information systems (IS) in this theoretical frame are seen not only as a sub-set of and a technical device for management, but also as a social system comprising technical factors and people in the organization. This implies that the technical part is only one of the elements. Consequently IS must be understood in the complex organizational context as well as in the political and societal context of the organization (Walsham, Symons et al. 1988). IS cannot be understood independently of the people around it, their social relationships, their culture and the work practices that they are engaged in within everyday life (Sheikh 2005, p. 14).

Several decades of experience with computer-based information systems make it clear that the critical issues in the implementation of these systems are social and organizational, not solely technical (Anderson 1997 cited Heeks, Mundy et al. 1999, p. 3).

2.1.2 Management and decision making

An organization may be structured in different ways and formal structures will often be viewed in an organization chart showing some sort of hierarchy, monitoring the task development, the decision making hierarchy and/or the information flow. Management of the organization may be centralized or de-centralized, although a classic principle in organization management is that it should be correspondence between responsibility and authority (Vanebo 1983; Amonoo-Lartson, Ebrahim et al. 1984; Amonoo-Lartson 1984; Opit 1987). Schein (1965, p. 43) define processes of management as “coordination through the decisions made by some members of the organization”, and managers are “those who have the power to make the decisions”. Koontz and O’Donnell (cited Schein 1965, p. 49) use four principal functions which a manager must perform: (1) plan; (2) organize; (3) motivate; and (4) control. In doing this, he/she will need information about the organization, its sub-systems and environments.

Vanebo (1983) uses 3 key processes in his analysis of organizations: the goal defining process, the decision making process and the communication process.
These processes are intertwined and develop over time among the people in the organization. These relatively stable patterns, developing and existing over time, form the structures. The flow of these processes in the organization may promote or prevent goal fulfilment (Vanebo 1983). These are the formal structures, but informal social structures as well as informal decision making structures will often be present in the organization. The informal structures are much more difficult to discover. If the informal and formal structures oppose, there will be a conflict. For example the personal goals of the employees may differ from the goals of the organization.

Planning and decision making is often described as rational processes, also called ‘ideal world planning’. Most authors argue that real life is too complicated to be captured in such a planning model. Green (1992) introduces alternative models for planning and emphasizes the importance of seeing planning as a political process. He also regard the relationship between planners, policy-makers, service managers and the communities in the planning process to be critical to the success of planning (Green 1992, p. 34).

What decisions to make and how are decisions made? Sauerborn (2000) discusses decision making models (Lasswell’s classical linear model (1975), Van Lohuizen knowledge-driven model (1986), Porter & Hicks (1995)). He conclude that the decision making process is ‘messier’ than a linear model suggests and that the social and political dimensions of the decision making processes are critical (Sauerborn 2000, p. 37).

Schaefer describes health planning and administration in the terms of decision making, and he uses 3 key processes in planning: communication, co-ordination and evaluation (all of which over-lap decision making). He asks how planning and decision making are connected; what kinds of decisions are to be made? By whom? According to what values? By whose definitions of reality and rationality? And he concludes by suggesting that health planners need to develop answers to these questions if they are not to be frustrated in their aims and purposes (Schaefer 1973, p. 3). Management and decision making is also emphasized in the HIS discourse and the crucial value of information in the decision making process:

Information is crucial at all management levels of the health services, from the periphery to the centre. It is crucial for patient/client management, for health unit management, as well as for health system planning and management (Lippeveld and Sauerborn 2000, p. 1).
**Decision making and evaluation**

In the running processes in an organization, evaluation, i.e. as information gathering to inform decisions, is an integrated part of management. Planning and evaluation is then a matter of succession, not method – a cyclic activity (Skjørshammer, Kaasa et al. 1987, p. 286).

Evaluation in this regard presupposes that there are alternatives to choose among. If there are no options, collecting information does not make any sense. Evaluation may however also be treated as a special strategy and performed ‘outside’ the daily management and different techniques are developed for this purpose. Evaluation and evaluation strategies related to HIS evaluation are discussed in more detail in section 2.5.

**2.1.3 Organizational change**

In a rapidly changing world, and with the view of organizations as dynamic, open systems, the topic of how to change and how to manage change in organizations has become an area of great interest often under the term of ‘organization development’. For almost all social structures, the most important maintenance source is human effort and motivation, and in participation-oriented theories of organizations, the way to increase motivation (and efficiency) is to let each person take part in those decisions that affect his or her role in the organization (Katz and Kahn 1978, p. 3; Sen 1999; Gregory 2003).

The different basic beliefs on human nature and motivation of work force influence the way of thinking about how to introduce and manage change in the organization. Change studies done at Harwood Manufacturing Company demonstrated the importance of the involvement in the planning of change of those workers who would be most influenced by the change (Schein 1980, p. 239). According to the opens systems thinking, change in any of the sub-systems or in the environment of an organization, will have effect on the larger system and/or interplay between the sub-systems. A change in planning and management at higher levels and the introduction of a computer based information system for example, will thus have a major impact on the system of a production unit at lowest level in the organization, the management, maintenance and more.

In implementing change in the organization, there seem to be a general agreement on the importance of the organizational culture. Cabrera et al (2001) see organizational culture as a key factor in technology-driven change and discuss a multilevel view of organizational change (Cabrera, Cabrera et al. 2001). They use the principles of an open systems approach (although they develop their own model and concepts) to answer the question why organizational culture is important in implementing ICT in organizations. Schein (1988), Cabrera et al (2001) and other authors discuss organizational change with the view that organizational culture can be managed. Cabrera relate this to Hofstede (1991) and his 3 levels of culture; national, occupational and organizational, where the national and occupational cultures are seen to be relative stable, while the organizational culture to some extent can be modified (see also section 2.1.5). It is however debated whether change in culture and organizations can be managed.

The idea that culture can be managed is challenged by Alvesson (2002, p. 11) and he emphasizes the need for all managerial action to consider the cultural context in which change is carried out – how subordinates, customers, etc. give meaning to, and act based on their perception of the world.
Contrary to the bold claims of much managerial writing, it is important to acknowledge that culture is not just something that can be actively mobilized to make people think, feel, value and behave in accordance with managerial wants, but that culture frequently works as a source of employees’ resistance to managerial objectives and control. Intention behind managerial interventions and arrangements on the one hand and subordinates’ reactions to these on the other may thus differ heavily. All managerial action then needs to consider the cultural context in which it is carried out – how subordinates, customers, etc. give meaning to, and act based on their perception of the world ( Alvesson 2002, p. 11).

People usually react to change from the standpoint of “What’s in it for me?” and it is therefore important to see changes from the point of view of those who will be affected (Amonoo-Lartson, Ebrahim et al. 1984, p. 145). Resistance to change among employees is emphasized by many as a reason why information systems do not succeed. Schein (1988, p. 243) refers to this as a common observation that people resist change, even when the goals are apparently highly desirable. One explanation for this will be that “To change one’s assumptions about human nature involves changing a long held set of attitudes, self-images, and working procedures”, and such a change will be strongly resisted because of its threatening nature, that is, the implication that the former way of functioning has been erroneous. (Schein 1988, p. 236)

**ICT as tool for change**

The very idea of systems development is to change organizations (Dahlbom and Mathiassen 1995, p. 270)

In information systems research the role of information and communication technology (ICT) in organizational change is emphasized and ICT’s are seen as crucial elements in the changes that are taking place in contemporary society (Bratteteig and Gregory 2001; Walsham 2001a). Bratteteig and Gregory (2001) claim that “Systems development is planned change concerned with both the building of an artefact and introduction of the artefact in the use situation – a planned social and cultural change”. Walsham builds on the work of Pettigrew (1987) and develops a framework for analysing the process of organizational change associated with a computer-based information system (Walsham 1993, p. 52). He refers to earlier work on IS that has concentrated mainly on the content of change and point to the importance of the process of change. He emphasizes how the introduction of computerized IS normally involves significant changes to the way in which people are expected to work and interact.

Human, physical and financial resources in HIS implementation form a special challenge in developing countries, where very often the most essential resources are lacking. This will add complexity to the change process in for example health care organizations. There is an ongoing discussion in development discourse whether ICT for development will lead to bridging what is called “the digital divide” between so-called developed countries and developing countries or if it will lead to a new form of dependency on the west (Wade 2004, p. 185). Lippeveld (2001) points to the resource problems in developing countries and that this will be a serious constraint in low-income countries for some time to come. He also claim that “(...) introducing computer technology is not necessarily the silver bullet that creates effectiveness and efficiency in health services. On the contrary, lack of appropriately trained staff and hardware and software problems sometimes result in the decay and obsolescence of expensive computer equipment, without any gains in decision making” (Lippeveld 2001, p. 24). In the development and implementation of HISP in South Africa, the
importance of information technology is not disputed, but the use of computers at facility
level is debated (Williamson, Stoops et al. 2001).

2.1.4 Organizational culture and information culture
‘Culture’ and ‘organizational culture’ are concepts that are seen as important when exploring
and discussing development and change in organizations, and thus important in the
development and implementation of IS and ICT. Kunda (cited Alvesson 2002, p.3) understand
culture to be a system of common symbols and meanings, and culture provides “the shared
rules governing cognitive and affective aspects of membership in an organization, and the
means whereby they are shaped and expressed”.

The interest in identifying, developing, sharing and using knowledge in a more systematic
way typically leads to a strong interest in organizational culture. Alverson (2002) and Stair
(1992, cited Avison and Myers 1995, p. 47) claim that organizational culture can “have a
significant impact on the development and operation of information systems within the
organization”. The following definition of organization culture given by Schein (1984) is
often cited:

Organizational culture is the pattern of basic assumptions that a given group has
invented, discovered, or developed in learning to cope with its problems of external
adaptation and internal integration, and that have worked well enough to be
considered valid, and, therefore, to be taught to new members as the correct way to
perceive, think and feel in relation to those problems (Schein 1984, p. 3).

Avison and Myers (1995, p. 48) review how the relationship between IT and organizational
culture has been seen in the IT literature and show how the term ‘culture’ has, as a general
rule, been used rather narrowly, or the concept is used in a common-sense way and often left
undefined – as if it did not need defining. They claim that Schein’s definition seem to be
taken for granted by many IS researchers and that culture often is discussed as if it was
synonymous with learned behaviors which identify and distinguish one group from another.
Avison and Myers suggest that IS researchers should adopt a more critical, anthropological
view of the concept.

Walsham (2001a, p. 200) asks how culture relates to IT use and how culture may be
understood, and he argues that in order to trace the introduction, development and use of
information and communication technologies in particular societies, one need to gain
understanding of cultural contexts.

However, working with IT in a particular context requires a deeper local cultural
understanding, and a process-oriented view as to how culture is implicated in IT
adoption and use processes. (…..) Understanding through immersion requires a
starting point of respect for local cultural values, and considerable effort to
understand these (Walsham 2001a, p. 201).

Cabrera (2001) refers to Hofstede (1991) who claim that there are 3 main factors that
determine the behavior of a person in the workplace: national culture, occupational culture
and organizational culture. National culture is based on differences in values which are
learned in early childhood. These values are strong enduring beliefs which are unlikely to
change throughout a person’s life. Occupational culture is acquired through schooling and
professional training and is comprised of both values and shared practices and finally,
organizational culture is based on different norms and shared practices which are learned in
the workplace and are considered as valid within the boundaries of a particular organization.
In the research literature around development and implementation of information systems it is an increased concern about what is called ‘information culture’ in organizations. The concept ‘information culture’ is in the IS literature often described in the frames of information technology, and ‘information culture’ is present if there is ‘use of information’, i.e. information provided by the formal information systems.

Information culture relates to the policy and management environment and the incentives to use information for decision making, as well as to the experience and attitudes of managers and planners with respect to the role of information in improving health system performance (RHINO 2001, p. 7).

The HIS and HISP discourses emphasize the development and/or cultivation of an information culture as one of the most important factors in IS development and implementation. The lack of an information culture is mentioned as one of the main challenges in HIS development. It is asked: “How does an organization culture facilitate or limit health information systems development and implementation processes?” (Mukama and Kimaro 2005). See also chapter 5, Discourse analysis for detailed discussion.

From a systems view of organizations, it follows that to picture the information culture in an organization, you need to consider the context in which the organizational unit is embedded and see the information culture as a part of the organizational culture. In understanding the organizational culture you have to include concepts like: values, rules, norms, basic assumptions or behavioral patterns. In conceptualizing ‘information culture’, Zheng (2005) reviews how information culture has been conceptualized in IS literature and find that, very often the term is taken for granted and used without a clear definition or theoretical discussion. As an exception is mentioned Martin et al (2003) who use an information culture approach to explore the gap between business and IT. Zheng offers this working definition:

(…) the general capability, views, norms and rules of behavior, with regard to accessing, understanding and using information in a social collectivity (p. 3).

The definition takes two stances: (1) Information culture cannot be ‘created’ or ‘established’, as it has always existed, as one dimension of culture, national or organizational, and (2) Technology is part of the resources human beings draw upon to shape their information culture (Zheng 2005). Zeng argues that:

(…) rather than focusing on technological innovation in healthcare institutions as an end in itself, developing countries should adopt a holistic approach to cultivate a more mature information culture in healthcare (Zheng 2005).

Martin, Lycett et al (2003) examine to which extent information culture can affect the barrier between the business and the IT organization in an information-intensive company. They use the following definition of ‘information culture’ where both formal and informal information systems are included:

(…) a system of shared meaning, manifested in the formal and informal information systems that are enacted through people, processes and technology (Martin and Lycett 2003, p.270).

They draw the figure 2.2 as a conceptual framework for analysing information culture. In this figure the information culture is divided broadly into two dimensions:

(1) The informal information system, which spans two layers of the culture, and covers beliefs, values, meanings and also informal behaviours.
(2) The formal information system that covers formalized systems, structures, processes and procedures. Within this lies the technical IT system.

![Conceptual Framework for Analysis of Information Culture](image)

**Figure 2.2 Conceptual Framework for Analysis of Information Culture (Martin, Lycett et al. 2003)**

They refer to an argumentation in the information debate that formal information is focused on at the expense of informal, and refer to Davenport (1993) as an example, who suggests that organizations tend to simplify information to fit into computers, thus losing the rich complexity of organizational information.

In a working paper Widén-Wulff (Widén-Wulff 2000) describes how she explores the information culture in the Finnish insurance industry. She is concerned with the information flow in the organization and how a rich information culture and functioning knowledge creation is connected to successful performance. She sees information culture as a part of the whole organizational culture and valuation and attitudes towards information are depending on the organization’s situation. Information culture is “about formal information systems (technology), common knowledge, individual information systems (attitudes), and information ethics”.

To give a rich picture of the organization information culture she interviewed managers at different levels in the organization in order to picture the information flow, the information communication, knowledge creation, information channels, IT, attitudes etc. In her analysis of the information culture she considers 5 stages:

- Information environment
- Information as a resource
- Work processes
• Innovation and
• Business success

To picture the 5 stages a number of factors are identified, for example is the information environment analyzed in relation to factors as: (1) bigger changes in the organization, (2) cooperation between units, (3) teamwork, (4) communication and feedback, (5) training, (6) creativity, (7) organizational aims and (8) middle management.

2.2 Health management and health information

An extensive discourse is developed after the Alma Ata declaration (WHO 1978) on the best strategies for reaching the health goals in developing countries. To achieve the goals of quality and equity in health care provision, a health care system reform based on PHC was recommended. Quality in health care is defined as:

(…) the success of the health services in meeting the health related needs of the population in a manner that is consistent with local goals, national goals and resource constraints (Whittaker, Veliotes et al. 1996, p. 125).

Quality of care covers a number of elements like accessibility, comprehensiveness, appropriateness, coverage, continuity, respect (measures the quality of the social interaction between health workers and patients) and equity to mention some. Many approaches and initiatives suggest how to improve and enhance quality, from medical education to enhancing the capacity of community members to participate in health care governance, management and service delivery (Whittaker et al). It is also claimed that:

Quality is a social and political, as well as a technical concept. The quality of the whole is not the sum of the quality of the parts. While there is no formula for dividing health resources or designing health systems, one thing is certain: the fragmented pursuit of quality from narrow perspectives does not serve a population-based, goal-orientated health system (Whittaker, Veliotes et al. 1996)

How to measure quality? Initiative for Sub-District Support (ISDS) in Health Systems Trust, SA (1997) asks the question: “What really improves the quality of primary health care?” and reviews initiatives which have aimed to improve the standard of health care provision. In particular they compare the District Health System and what is called Quality Assurance methodology. Questions to be asked are: Why measure quality? Who defines what quality is? How is quality measured? Quantifying quality will be at the risk of leaving important components of the patient treatment out and focus on measuring factors that are easy to count.

The big challenges in health care provision in most developing countries are allocation of scarce resources to meet the health needs in the population, and re-structuring of health care services from centralized health systems to a decentralized primary health care based system was recommended and adopted as a strategy by most countries. The basic principles of correspondence between authority and responsibility in management and decision making will remain the same also within the constraints of scarce resources and organizational change. This ‘correspondence-principle’ is also repeatedly emphasized in the HIS discourse (Amonoo-Lartson, Ebrahim et al. 1984; Opit 1987).

Special emphasis in the literature is placed on the imperative role of information for management in health care delivery, and the development of computerized information
systems has become a major task in many developing countries. The questions of “what decisions to make, by whom, by whose definitions of reality and rationality, and “what specific information is necessary to make those decisions” (Schaefer 1973; Amonoo-Lartson, Ebrahim et al. 1984; Heywood and Campbell 1997) are stated through the literature about health administration and HIS management.

2.2.1 The different managerial levels and different information needs

Use of information in decision making is a main goal of HIS development and a central issue in the HIS discourse. The importance of “customizing information to users’ needs” is emphasized by many authors (Bodart and Shrestha 2000; Sauerborn 2000, p. 39). In a training manual for district health workers, the identification of all possible information users and the kind of decisions they are able to take, is seen as an important first step for identifying information needs and modifying a HIS (Heywood, Campbell et al. 1994, p. 28).

Lippeveld and Sauerborn (2000, p. 15) develop a ‘systems approach’ for health information systems. The authors argue that even if the HIS are idiosyncratic to the countries that develop them, there are some common elements, which can be adapted to create more effective and efficient systems. To show this they 1) examine the HIS structure and its breakdown into components; 2) describe an organizational model of health services with concentration levels from the periphery to the centre; 3) propose a HIS restructuring process in six steps, matching each step with the proposed health service model. Thus they define three types of management functions with specific information needs:

<table>
<thead>
<tr>
<th>Concentration levels</th>
<th>Management function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health System Management</td>
</tr>
<tr>
<td>Tertiary level</td>
<td>National, Regional</td>
</tr>
<tr>
<td>Secondary level</td>
<td>District</td>
</tr>
<tr>
<td>Primary level</td>
<td>First level care health units</td>
</tr>
</tbody>
</table>

Figure 2.3 Managerial levels and management functions (Lippeveld and Sauerborn 2000)

This model allows at each concentration level to identify what the specific management functions are, who the information users are and what decisions they have to make. Quality care at each level will be defined differently, so different information is needed to make appropriate decisions. They also provide a checklist of management functions in a decentralized health service system, specified for each concentration level in terms of who is responsible for what. This should provide a basis to choose indicators for decision making at all levels of health services (Lippeveld and Sauerborn 2000). The general management
objective of a health unit is to provide health care to a defined population in the catchment area surrounding the health unit with a given amount of resources. The main patient management function for health units at primary level is to provide quality care; curative, preventive and promotional care.

Levels of information are also often showed as a pyramid, illustrating the different managerial levels in the system and needs for information:

![Information Pyramid](image)

**Figure 2.4  The information pyramid**

Following the model of managerial levels and management functions in health care organization, information needs for the health facility at primary level will mainly be information about patients and the community which they serve. Although the importance of relevant information at each level in a health organization is emphasized repeatedly in the literature, much of the information collected at facility level is requested from higher management levels and is not useful for decision making at facility level, while relevant local data and information has to be collected outside the formal IS.

Routine health information systems, to live up this potential, need to be more responsive to information needs of the health services at all levels, particularly at the service delivery levels, where the data are generated (Lippeveld and Sapiro 2000, p. 243).

The focus in this thesis is on data collection and information needs at facility level. This is the lowest level in the health care delivery organization and at the same time the most important. Clinics and health centers will be the main points of first contact with the health system (ANC 1994). This is also recognized by the Third International RHINO Workshop (2006) with the title: “Information for Action: Facility and Community Focus”.

The first level of care forms the core of most health information systems. It is the primary delivery point for services, the principal point of contact for patients, and the primary location for data collection (RHINO 2006, p. 1).
2.2.2 Different types of data

Health information comes from different sources and is collected by different methods. No single data source can provide all the information required for planning and managing the health services (Lippeveld, Sauerborn et al. 2000). Lippeveld (2000) classify the data collection methods into two groups: routine methods and non-routine methods. Other classification groups of data collection might be: anonymized data versus patient based data, and health unit based versus population-based community health data collection. Routine and health unit based information systems like DHIS contains anonymized data and is well suited for compiling statistics and reports on the health status, while data collected in patient based systems should refer to a person and is of relevance in patient management.

Routine health unit-managed data collection is the classic form of routine data collected, and the data are collected based on patient encounters in the health facility or through outreach (Lippeveld 2001, p. 13). A critique against the facility based data collection is lack of representativeness of the population. Routine health unit data provides information on the health of those individuals who use the regular health services and this can be a problem in countries where access to or use of health services is low (Lippeveld 2001). Byrne (2002) argues that an information system that ignores systems outside of the health facility is insufficient (Byrne 2002, p. 147). Population-based health and information systems serve defined populations and include local community participation in planning, managing and responding to the system and its information (Marsh 2000). Marsh claims that “Although the broad strategies to achieve equity in health are similar, each health system reflects local health priorities, culture and resources”.

Lippeveld (2001) points to a possible solution to the problem of non-representativeness in health unit-based information systems by expanding the information system with some form of community-based data collection. He also challenges the research community to help answer the question: “Given the benefits of a population-based community health information system, how can it be linked effectively to a routine health unit-based HIS?” (Lippeveld 2001, p. 26).

2.3 Classification, work practice and the problem of representation

As human beings, we do a lot of classification work through our daily life, matching size, color and types in doing so. These standards and classifications are ordinarily invisible. In anthropology the study of classifications and standards is a device for understanding the cultures of others (Bowker and Star 2002). Bowker and Star (2001) describe how a system for classification of nurses’ interventions, the Nursing Intervention Classification (NIC) in health care, was developed. The aim of NIC was to make visible and legitimate the work that nurses do. Before NIC, much nursing work was invisible to the medical record, and the authors seek to understand the role of invisibility in the work that classification does in ordering human interaction. Berg (1997), in his book “Rationalizing medical work”, reviews the post war discourse and medical practice and shows how classification and science change medical work practice (Berg 1997).

The development of information systems implies standardization of data. Information needs must be transformed into data categories and indicators for measurement. “Indicators are variables that indicate or show a given situation, and thus can be used to measure change” (Green 1992). In the development of the district based health information system (DHIS) in
South Africa, standardization of health data has been a major task. During Apartheid, the health services were fragmented and there were no comprehensive national standards for data collection. Each province used different data sets, definitions and standards (Braa and Hedberg 2002).

(…), information system design for local empowerment in the health sector needs to address standardization as a central issue. This problem may be analyzed in terms of the tension between standardization and flexibility for localization (Hanseth et al 1996 cited Braa and Hedberg 2002, p. 114. Italics in original).

The complex work of standardization and the balance of local and global level are discussed by Braa and Hedberg (2002). They claim that “while standards are foundational for coordinating activities across time and space, flexibility is necessary for grounding these activities locally, …”. Jacucci et al. (2005) focus on the relation between sustainability and standardization. They see how the challenge of sustainability tends to split on two levels: A global level where the standard should be accepted by processes of institutionalization, support, networking and funding; and a local level where the standard needs to be implemented in a way that becomes integrated in the local context. The HISP in South Africa addressed this challenge by defining a core set of essential data elements (EDS). A hierarchy of standards was created to allow flexibility at the different levels in the health services organization (see figure 2.4) (Jacucci, Shaw et al. 2005).

Classification is however always difficult and there are many aspects to be considered. In defining and selecting an essential data set and elements to be collected for decision making support, one at the same time defines the part of the work practice of the facility health workers that will be counted and visible in the reporting system, and what is not counted and thus invisible. The nursing work at the facility that is not part of the EDS, and thus not counted, may however cover a greater part of a working day for the health worker.

In a classification system you will probably never be able to cover ‘everything’ and it will also not be desirable. Tacit / local knowledge and flexible solutions to local needs are difficult to capture in a routine information system. Problem(s) may however arise when the information that is captured is used, not only for comparability and planning, but also for control and budget distribution.

2.4 Health information systems

An information system is defined as:

A system which assembles, stores, processes and delivers information relevant to an organization (or to society) in such a way that the information is accessible and useful to those who wish to use it, including managers, staff, clients and citizens. An information system is a human activity (social) system which may or may not involve computer systems (Avison and Myers 1995)

The ultimate goal of a health information system (HIS) will be to deliver relevant information to the units in the health care organization. HIS can be data-led or action-led. Heywood (1994) describes a data-led information system to collect data because it is requested by higher levels and focuses on the data collection itself while an action-led information system only collects the data that is needed for appropriate management. In an action-led system, data
collection decisions will start by asking what a manager has the power to decide (Heywood,
Campbell et al. 1994, p. 4).

An action-led system must begin its development with the same question at all
levels: In which areas does one have decision making authority, and what specific
information is required to make these decisions more effectively? Information that
does not respond to this question should never be collected (Campbell 2003, p. 9 -
italics in original).

In an introduction to the 1st RHINO Workshop, Lippeveld (2001) discusses how a routine
health information system (RHIS) can be “The Glue of a Unified Health System”. He
emphasizes that a RHIS cannot exist by itself, but is a functional entity within the framework
of a comprehensive health system to improve the health of individuals and the population, and
gives guiding principles for effective RHIS restructuring. “A HIS structure should permit
generation of the necessary information for rational decision making at each level of the
health system, from local all the way up to national” (Lippeveld 2001, p. 15).

In his Keynote Address to the 2nd RHINO Workshop (2003), Bruce Campbell asks the
question whether RHIS can be directly (or indirectly) responsible for improvements in the
health of individuals or communities in any measurable way. He discusses the development of
RHIS and claims that a lasting problem is that: “Availability of information (in any form, of
any quality or in any frequency) has NOT guaranteed its utilization for improved health-
related decisions” (Campbell 2003, p. 9).

Despite the abundance of theory and literature on how to develop a successful IS, Sapiirie
(2001, p. 105) claims that “examples of successful, sustainable routine health information
systems development efforts are rare”. In addition he suggests that the increasing amount of
international cooperation and funding being devoted to HIS improvement in developing and
transition countries is largely ineffective, sometimes even disruptive and counterproductive.

2.4.1 Systems development and participation

Participation in information systems development is a tradition that in recent years has been
named ‘Participatory Design’ (PD). In the PD field it is argued that the basic motivation for
participation is the idea of democracy (Sjöberg 1996, p. 29). The democratic ideal is that
every human should have the right to participate equally in decisions concerning his or her
life, although in many societies and sectors of life this freedom has been limited. The
background of participation in Scandinavia is found in the laws on democratization of work
and the strong trade union. User participation in design is desirable for several reasons with
mixed motivations:

- improving the knowledge upon which systems are built;
- enabling people to develop realistic expectations, and reducing resistance to change;
- increasing workplace democracy by giving the members of an organization the right to
  participate in decision that are likely to affect their work
  (Bjerknes and Bratteteig 1995).

Ideally users at many levels participate so that the change can be shaped from several
perspectives (Bratteteig and Gregory 2001). One of the general lessons learned from a number
of work-oriented design projects include however that “A participatory approach to the design
process is not sufficient in the context of democratization at work” (Ehn 1993, p. 21).
Puri et al (2004) discuss participatory design in a western and developing countries context. In a special issue of ‘The Information Society’ it is recognized that IS from the ‘developed’ world cannot be replicated in developing countries (Puri, Byrne et al. 2004, p. 43). “PD in the Western countries can be characterized by a workplace focus where it is recognized that it is ethically and morally right that workers should be involved in the development of systems which are to affect their working place.” Puri et al (2004) also refer to Ehn (1993) when claiming that: “More recent critical analyses of participatory design (PD) suggest that while PD may be necessary, it is not sufficient in itself to ensure success of IS, other important determinants of success being power and politics at the workplace.”

Braa (1997, p. 2) argue that “lessons from Scandinavia are indeed important but they need to be adapted and cultivated in third world contexts. First of all, (…..) learning and empowerment need to address the community rather than the workplace” (italics in original). Braa also sees another important difference to the Scandinavian approach in that deprived communities are not threatened by technology, they are threatened by being ignored and sidelined by technology. Thus appropriation of IT by the communities through “designing for empowerment” is a main objective.

Heeks et al (1999) discuss approaches to reducing gaps between systems design and reality. They emphasize the need for seeing IS as part of a multi-dimensional process of change, and that therefore health care IT professionals must see themselves as change agents. Participatory approaches can be particularly useful for reducing the gap between systems design and reality along the objectives and values dimension (Heeks, Mundy et al. 1999, p. 19).

The question of “who to include in the participatory process?”, and “in what to participate?” is discussed by Byrne and Sahay (2003). From a human right perspective they discuss the need for re-conceptualizing the idea of PD in IS and emphasize “the obligatory nature of community involvement; the need to develop capacity for participation; the politics of participation and “non-participation, and; the need for a multi-level and multi-sectoral approach.

2.4.2 HIS in developing countries

The development and implementation of health information systems in developing countries is widely seen as critical for improving the quality of health services (Lippeveld, Sauerborn et al. 2000). IS development and introduction of ICT meet however special challenges and constraints in developing countries. There are problems related to inadequate infrastructure, lack of financial resources and shortage in educated personnel. Important obstacles may also be existing vertical and fragmented organizational structures. Walsham (1988) discusses implications of the social systems approach in IS for research, education and practice in developing countries, and emphasizes the need to include analysis of the social, organizational and political context of IS in order to gain a better understanding of their development and use. For outside IS systems consultants it is essential to understand the organizational context in which they are going to work. It is important to take time to study social aspects of the country and to gain some understanding of the shared but unspoken values which form part of the culture (Walsham, Symons et al. 1988, p. 203).

Information technology is seen as a supporting tool to improve the information processes. The adoption of computers and the need for equipment is however an additional challenge in developing countries. This involves the purchase and installation of the technology as well as the process of institutional capacity building (Sheikh 2005). The introduction of IT in
developing countries has also led to a dependency on international donor agencies for the
governments to cope with the problem of finance. Wade (2004) discusses what he calls a
biased discourse of “bridging the digital divide” and claims that:

(…) developing countries are in danger of locking themselves into a new form of e-
dependency on the west as they introduce software and hardware systems that they
have no capacity to maintain for themselves and that become crucial to the very
functioning of their corporate and public sector (Wade 2004, p. 201).

As an example Wade (2004) refers to the software-hardware race with new versions of
software and the constant need for further investment that almost only represents a huge
misallocation of resources, not only in developing countries but also in OECD countries.

2.5 Evaluation of health information systems

Evaluation in an organization is a part of the organization’s managerial processes, and the IS
as a supporting tool for management needs to be evaluated according to the goals of the
organization (Walsham, Symons et al. 1988, p. 194). Schaefer gives this definition of
evaluation:

Evaluation: that part of the decision making process in which information about
actions and their results are systematically assessed against norms and their criteria,
in order to select among alternatives for their future (Schaefer 1973, p. 72).

Applying this definition to PHC in developing countries, the stated goals (‘norms’) are ‘health
for all’ and equity and quality in health care delivery. Quality in PHC has been defined as “the
success of the health services in meeting the health related needs of the population in a
manner that is consistent with local goals, national goals and resource constraints” (Whittaker,
Veliotes et al. 1996).

How to measure success in improving quality of care (‘criteria’), and how to measure the
effect and success of an information system to achieve those goals? These questions comprise
a variety of aspects from the quality of the data collection process to the human aspects of
how people experience health care services (see also section 2.2 - introduction). In PHC
‘customer complaints’ has been taken as a valid measure for quality of care within the
services. Clewer and Perkins (1998) claim however that while this measure is subject to
external influence, an increasing number of complaints may bear little relation to the quality
of care. Cooke and Henderson (2000) give examples of why (lack of) complaints do not give
a reliable measure of quality. They claim that few service users complain because they are
generally grateful for whatever help they get (Cooke and Henderson 2000, p. 8).

There are several factors involved in evaluation research with different values guiding the
approach. These values can vary according to what kind of reference group that perform the
evaluation. Individuals with different backgrounds and whose expectations can even be
contradictory, are characteristic of the evaluation of health care information systems (Turunen
2001, p. 2). Evaluation of computerized HIS often focus on data- and information related
topics, such as data-flow and data-quality.

Lippeveld (2000) discusses the context in which HIS reform takes place and asks who has a
stake in the reform. “Even something as technocratic as health information system reform has
strong political dynamics (…). Understanding what is at stake for each of the actors in the

24
health information system reform process is therefore of utmost importance”. Among the contextual factors, Lippeveld (2000, p. 231) mentions the political environment and the international donor community.

Turunen (2001) applies stakeholder theory to evaluation of HIS. Stakeholder thinking is based on identifying the relevant stakeholder groups and their expectations and is based on the assumption that the different stakeholder groups may have different values related to the evaluation. It is therefore important to identify these groups and their interests. Requirements such as methodical competence, objectivity, accuracy and reliability, normally associated with scientific work are considered especially important for evaluation research, and evaluation projects often have strong research-orientation (Turunen 2001, p. 2). He also claims that “the line between research and practice is blurred by the fact that through training people become recipients of research results, which in turn serve as training material. Turunen’s research aims at assessing how certain evaluation methods suit different stakeholder groups. One of his results is that “Evaluation in the context of one’s own work seems to be more important to the users than evaluation how the program functions or evaluating the usability of the program in a narrow context (e.g. the user interface) (Turunen 2001, p. 8). Stakeholders in the HIS development in South Africa are described in more detail Section 5.6.

In discussing evaluation strategies, Walsham et al (1988) point to the need for a comprehensive evaluation where historical, social and political issues may be of equal or greater importance than the technical and economic dimensions. They claim that research on social systems needs an interpretive methodology, which aims at the analysis and description of human behavior by an understanding of the meanings individuals attach to their actions (Walsham, Symons et al. 1988).

The ultimate goal of a HIS is to provide useful information for management at each level of the health services (Sauerborn and Lippeveld 2000). An IS may be a success at one level in the organization, but not at another level. When an IS is computerized, it adds complexity to the many aspects of evaluation. The stated success criterion for a HIS (for example DHIS) is “use of information for decision making”. This is stressed through all the HIS discourse. ‘Informed decisions’ is a concept often used and the issue of choice and decision making power lies implicit in the evaluation and decision making processes. If the use of available information is not believed to bring change or affect decisions, it will be regarded a waste of time.

_The HIS measures its ultimate success by informed decisions that lead to action and positive change in the health system or health status, (…)_

_Informed_ decisions are those where there is evidence of HIS information being used to support the decision making process. Such _informed_ decisions can be contrasted with those that are politically driven or that are based on intuition or experience (Campbell (RHINO 2003 p. 10 italics in original).

Information use is linked with decision making power. The greater the authority to take action the more likely that data will be analyzed and used (Lippeveld, RHINO 2001).

In the development of the District Health Information System, the vision of HISP is:

..to support the development of an excellent and sustainable health information system that enables all health care workers to use their own information to improve the coverage and quality of health care within our communities (Williamson, Stoops et al. 2001)
The concepts ‘use of information’ and ‘decision making power’ are discussed in more detail in Section 5.7.

Baum (1995) discusses goals and targets for health and their limitations as an approach to promoting health. He claims that emphasis on measurement leads to focusing on aspects of health and illness that are the most measurable and not to more holistic approaches that focus on community and their participation in improving health. The danger of concentrating on those aspects is that more significant issues are ignored.

**Evaluation tools and methods**

Assessment of health care and HIS may take place at different levels and for different purposes and a combination of tools and methods are available. Different tools are developed for specific purposes that include only parts of the health services and/or HIS. Health Systems Trust introduce different tools like the ‘Disca tool’ for assessing quality of care in STI and the ‘Client tool’ for assessing client satisfaction. Traditional evaluation methods will be qualitative methods like interviews and observations. Research methods in general are discussed in chapter 4.

The ‘TALI Tool’ is a self-assessment tool in assessing use of routine information developed by HISP in South Africa. (see also Section 6.8). This tool introduces the concept ‘levels of information usage’ and focus on the defined data set for PHC at each level in the health care delivery: facility, sub-district, province and national. A set of indicators is selected for each level of information use. The tool has been accepted by the National Health Information System South Africa (NHISSA) as a tool for evaluation of information use across the country. Jakobsen and Johansen (2004) use an ‘information audit’ and discuss this tool compared to other evaluation methods. An evaluation of success as described in the previous section will however require a more comprehensive use of methods.

**Summary**

In this chapter I have provided theoretical and conceptual framework from organizational theory (organizational psychology, management and decision making) and health information systems as a framework for analyzing the case study findings. Motivation and how to motivate for change in organizations has been a central issue as also organization and information culture. Previous research has concluded that HIS are not used to inform decisions in PHC management and that there is a lack of information culture at local level. Based on the conceptual frameworks presented the concepts ‘information culture’ and ‘use of information’ are discussed and developed further.
3 Research settings

3.1 South Africa

Like many other countries on the African continent, The Republic of South Africa (SA) has a history of colonization, ruled by both the British and the Dutch people. In 1902 the South African Union (SAU) was formed and in 1910 the Union became a part of the British Commonwealth (BC). In 1961 the SAU left the BC and became a republic. From 1948 to 1994 the National Party run a system of racial discrimination that came to be known as apartheid, an Afrikaans term for the state of being apart; a political system that was strongly criticized from the international communities. So-called ‘Homelands’ – separate areas for the black Africans were constituted and 2/3 of the SA population lived in these areas that covered only 13% of the land.

figure 3.1 Map South Africa

Their access to white areas was restricted outside working hours. People of mixed races, called coloureds, were forced away from their homes to live in separate ‘townships’. In some cases they had to leave homes where their families had lived for generations. The coloureds played an important part in the struggle against apartheid. Voting rights were denied to both black Africans and coloureds during the apartheid era and many other laws regulated their daily life like what kind of education they would get, with whom they were allowed to meet, who to marry, and type of work, to mention some.

After many years of internal and international resistance and fight against the SA apartheid regime, the first free and democratic elections were held in 1994. The African National Congress (ANC) won the elections and the new South African Government started to reconstruct their society in order to provide the people with equal rights and opportunities.

A ‘Reconstruction and Development Programme’ (RDP) was developed with the assistance of a wide range of non-governmental organisations (NGO’s) and research organizations with the aim to develop:

...an integrated, coherent socio-economic policy framework. It seeks to mobilise all our people and our country’s resources toward the final eradication of the results of apartheid and the building of a democratic, non-racial and non-sexist future. It represents a vision for the fundamental transformation of South Africa (Department of Health 1997)

Today the South African economy is the largest and most well developed of the entire African continent, with modern infrastructure common in nearly all of the country. There are however
still extreme gaps in income, education and living conditions between the white and black population, despite the visionary goals and efforts from the new Government.

The sorting of people in different racial groups: White, Black African, Coloured, Indian or Asian and Other is still expressed in the South African Census of 2001, and influences to a certain extent the way people think and talk, although the reason for categorization is no longer racial discrimination.

*Population group*

Statistics South Africa (Stats SA) continues to classify people by population group, in order to monitor progress in moving away from the apartheid-based discrimination of the past. However membership of a population group is now based on self-perception and self-classification, not on a legal definition.

(South African Census 2001, p. 1)

The country has now (Census 2001) a population of 44 million people, with a mix of races and groups. The Black African group count for 79 %, White 9.6 %, Coloured 8.9 % and Indian/Asian 2.5 %. The white population is reduced from 10.9 % in 1996 due to what is called the ‘brain drain’, i.e. educated white people leaving the country for better payment and working conditions to Great Britain, USA and Australia. This is a problem that also affects health care where there is a shortage of doctors and nurses. In 2004 only about 40% of facilities had primary health care nurses and only 30% of clinics were estimated to be visited by a doctor at least once a week (Department of Health 2004).

### 3.2 Health care services in South Africa

When ANC won the elections in 1994, they inherited a health care system that is described as one of the least equitable in the world, and a system that had served the health needs of the richest 20% of the population and left the black majority with very poor health status and health services. The health services were extremely fragmented with separate health departments for the ‘homelands’ and the different population groups, in total 14 health departments (Braa and Heywood 1995; Braa and Hedberg 2002). During the apartheid era the SA health sector was, and to some extent still is, hospital- and curative-care oriented. The focus was on technologically sophisticated hospital care, while primary health care was poorly developed (Braa 1997; Wilson, Rohde et al. 2001).

A part of the RDP in South Africa was transformation of the health system, from quality health care for the few, to a decentralized health system based on primary health care. In 1994 “A National Health Plan for South Africa” was prepared by ANC with the support of WHO and UNICEF and in 1997 Department of Health released a “White Paper for the Transformation of the Health System in South Africa” (Department of Health 1997).

We have set ourselves the task of developing a unified health system capable of delivering quality health care to all our citizens efficiently and in a caring environment (Department of Health 1997).

NGO’s and private sector are also important parts of the restructured health care services in SA. This is acknowledged in the ‘White Paper’ (Department of Health 1997):

Restructuring the health sector has the following aims:

a) to unify the fragmented health services at all levels into a comprehensive and integrated NHS;
b) to reduce disparities and inequities in health service delivery and increase access to improved and integrated services, based on primary health care principles;
c) to give priority to maternal, child and women’s health; and to mobilise all partners, including the private sector, NGOs and communities in support of an integrated NHS.

In 2001 the Department of Health introduced a District Health System Competition with the sub-title: “What we have done and learnt in the last two years”. Progress and obstacles experienced so far in the restructuring process are expressed and among the obstacles are:

a. different pace of transformation of local government compared to that of the health system.
b. lack of legal mechanisms to develop the DHS, including to transfer personnel from provincial establishments to local government;
c. lack of capacity at district level- most managers were new with little management experience and very few management posts were filled at district level;
d. lack of clear leadership and political commitment to devolve services until the process of local government reform was completed this process started in 1994 and is scheduled to be completed after the December 2000 local government elections; and
e. lack of trust, in many provinces, between provincial and local government officials who are driving the process of district development.

The National Department of Health gives the “Strategic Priorities for the National Health System 2004 – 2009” based on an assessment of “what has been achieved in the past 10 years”. The priorities are:

- improve governance and management of the National Health System
- promote healthy lifestyles
- contribute towards human dignity by improving quality of care
- improve management of communicable diseases and non-communicable illnesses
- strengthen primary health care, EMS and hospital service delivery systems
- strengthen support services
- human resource planning, development and management
- planning, budgeting and monitoring and evaluation
- prepare & implement legislation
- strengthen international relations

Among the major achievements is mentioned the strengthening of the health information system, while a uniform patient information system to track patients regardless of where they present, has yet to be developed. A PHC package has been adopted and all districts were expected to ensure availability by 2004. To improve quality of care a ‘National Policy on Quality’ was adopted (2001) and all provinces have provincial policies based on the national policy (Department of Health 2004).

In 2003 the Western Cape Health Department launched the ‘Healthcare 2010’ – a plan for ensuring equal access to quality health care with the vision to improve health care within the existing resource constraints. The initiative focus on primary level services, community-based care and preventive care. They recognize that “things are difficult in health” but continue to aim towards the goals already set by the national government in 1994 (Department of Health 2003).
3.3 Health Information System Program – HISP

To support the development of the new district based PHC, both the National Health Plan and the RDP state the need for an effective National Health Information System in South Africa (NHISSA). The old information systems were fragmented and characterized by vertical lines. Each province had its own data sets, definitions and standards, and there were no national standards for data collection (Braa and Hedberg 2002). The PHC approach would be the underlying philosophy for restructuring the health system and the new information system should aim at supporting local management and health care delivery and enable the evaluation of the delivery of health services (Department of Health 1997).

HISP is a collaborative research and development program comprising several universities and government organizations, such as ministries and departments of health. The project started in three pilot districts in Cape Town in 1996, with the aim to identify information needs and to engage the community of end users and local management in the process of developing a new health information system (Braa and Hedberg 2002). NORAD (Norwegian Agency for Development Cooperation) provided funding for the first main phase (1996-98) and NUFU for the period 1999 – 2001. HISP was based at the University of Western Cape (UWC) and the University of Cape Town (UCT) and the HISP team consisted of university staff, people from the health sector and NGOs, and Norwegian researchers.

Main areas for HISP research were the development of an Essential Data Set (EDS) and standards for PHC data and the development of a District Health Information System (DHIS). Based on the achievements during the pilot projects, a National Health District Conference and NHISSA decided in 1999 to adopt the DHIS as a national standard and to roll it out in all provinces. The rollout was partly funded by the Government and partly by USAID through the EQUITY project.

Figure 3.2: Chronology of important events in the HISP case (Braa and Hedberg 2002, p 118)
Starting out in South Africa, HISP has spread to other countries in Africa and also other continents and operates as a global network within the health care sector across a number of developing countries. The primary goal of the HISP research is to design, implement, and sustain HIS following a participatory approach to support local management of health care delivery and information flows in selected health facilities, districts, and provinces, and its further spread within and across developing countries (Braa, Monteiro et al. 2004, p. 343).

![HISP global network in 2004](image)

During 2003, HISP South Africa established itself as a Section 21 Company (not-for-profit) organisation. As such it has been contracted to provide services to donors and governments in a number of countries and there has been established a Board of Directors.

During 2005 HISP was awarded two large contracts jointly with Health Systems Trust – to provide training on Information Systems related to the provision of Anti-Retroviral Drugs as a part of the National Comprehensive HIV/AIDS Care, Management and Treatment Plan and the provision of DHIS Support to the National Department of Health and the nine Provincial Departments of Health.

### 3.4 District Health Information Software – DHIS

Important in the HISP strategy was to develop an Essential Data Set (EDS) and standards for PHC data and the development of a District Health Information Software (DHIS). The software is facility based and looks at routine aggregated anonymized data from primary level. The DHIS allows health services to enter data on a routine basis (monthly, quarterly and annually) or information on an ad hoc basis as in surveys. It also allows users to generate reports and to run accuracy checks on the data (HISP manual v 1.3.0.1). The DHIS is a software package based on the database programs in Microsoft Office Professional (1997 & 2000). It uses MS Access for data entry and MS Excel Pivot Tables for data extraction, manipulation and graphing. The DHIS is free and open source software. Anyone can use,
customize and modify it, as long as it is not abused for commercial purposes. Development of the software principles include:

- The users at local level should be able to adapt the software system to suite their needs
- The system allows users to add new facilities, and to define new data elements and indicators, define new validation rules, and set maximum and minimum limits for data entry.
- Users at all levels should be given feedback on the data that are entered into the system.

![Screen shot of the DHIS v 1.3 ‘front page’](image.png)

Figure 3.4  Screen shot of the DHIS v 1.3 ‘front page’

In areas where facilities do not have computers on site, the data are usually entered into a computer system in health district or sub-district offices, then transmitted electronically to provincial and national departments (Hedberg 2003).

A disadvantage with the DHIS (2003) is however that it builds on the Microsoft Office programs and licences that are rather expensive. A newer version, a platform-independent application began as a student project in Oslo and with additional support from professional software developers a version 2 of DHIS has been developed and deployed in India, Vietnam and Ethiopia.
Figure 3.5 shows an example of a data entry sheet in the DHIS software:

![Data Entry Sheet in DHIS](image)

**Figure 3.5 Data entry screen in DHIS**
3.5 Cape Town - Health and Health Information Management

Cape Town is the Metropole of the Western Cape Province. The city has big inequities in living conditions, from the very rich in the central and southern areas, to the very poor in the ‘townships’ surrounding the city centre. No areas are restricted for certain categories of people, and the shopping malls are used by people of all races and income. To live in the hotels or apartment houses in the “Victoria & Alfred Waterfront” area is however only for tourists and affluent people. The ‘townships’, settlements for mostly black and coloured people have a completely different architecture and are burdened with a very high rate of unemployment.

“Victoria & Alfred Waterfront” – shopping, hotels and entertainment

The ‘Waterfront Cash & Cool Spot’ bar in Khayelitsha, Cape Town

Photos 3.2 and 3.3 Cape Town – and the two ‘Waterfronts’

The PHC services in Cape Town have 2 line organizations: The Cape Town Metropole is a Health District in the Western Cape Province, with a Provincial Administration in Cape Town
(PAWC) and the Local Government have the City Health Department (CoCT). Both render
health care services at facility level.

Until 2003, PAWC was responsible for curative care, while CoCT was responsible for
preventive care. The long term goal is, however, to integrate the services and both
organizations will render comprehensive services, i.e. preventive, curative and also
environmental care. As of today (2003), the environmental care is administrated from an
Environmental Health Officer working from the Municipality in cooperation with the clinics.
These structures and also the health information flow and management are described in more
detail in chapter 6 – Case study.

Figure 3.6 The Provincial and Local Health organizations in Western Cape / Cape Town
4 Research approach

4.1 Introduction

Is there one objective and observable ‘reality’? How do we think about and study social reality? How do we obtain new knowledge? These questions have been discussed by philosophers and researchers for centuries. To study certain phenomena in the world, researchers have developed different methods for collecting data and achieve new insights, guided by certain philosophical assumptions about society, human action and knowledge creation. This chapter gives a short introduction to different research approaches and to the approach used in my research to inform data collection and analysis.

Traditionally the literature distinguishes between quantitative and qualitative research methods; a research project may however use a mix of the methods. Quantitative methods measure information numerically, and try to test or verify theories or explanations by using statistics, surveys and laboratory experiments. Qualitative research methods are designed to help researchers understand people and the social and cultural contexts within which they live (Myers 1997).

These approaches and methods all have underlying philosophical assumptions of what constitutes ‘valid’ research knowledge. Meyers (1997) divides into 3 categories of these underlying assumptions; positivist, interpretive and critical. He describes positivists as generally assuming that reality is objectively given and can be described by measurable properties, which are independent of the observer and his/her instruments, while critical researchers assume that social reality is historically constituted and that it is produced and reproduced by people. Interpretive researchers start out with the assumption that access to reality is only through social constructions such as language, consciousness and shared meanings (Myers 1997).

Walsham (2005) claims that research can be both interpretive and critical and that stronger critical emphasis comes from:

- Motivation – what is wrong in the world rather than right
- Focus – on issues such as asymmetries of power relations
- Theory – with a critical edge e.g. Frankfurt school, Bourdie, post-colonialism
  (In a course on Interpretive Research in IS - University of Oslo 2005).

Figure 4.1 shows an overview of the relations between philosophical assumptions and research approaches.
4.2 Interpretive research

Interpretive research is based on the philosophical ideas of phenomenology and hermeneutics, and methods of research start from the position that our knowledge of reality is a social construction by human actors (Walsham 1993). From hermeneutics, the interplay between the part and the whole (hermeneutic circle and process) is emphasized. In line with this, context is important in information systems research and it is common accepted that information systems has to be seen as a social system and should be studied in its organizational and human context. Walsham (1993) describes interpretive methods as: “…aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by its context” (italics in original).

Interpretive methods of research start from the position that our knowledge of reality, including the domain of human action, is a social construction by human actors and that this applies equally to researchers. Thus there is no objective reality which can be discovered by researchers and replicated by others, in contrast to the assumptions of positivist science (Walsham 1993, p. 5).

In interpretive research the role of the researcher is important in that the researcher’s prior assumptions, beliefs, values and interest always intervene to shape their investigations (Orlikowski and Baroudi 1991). A consequence of this view is that no value free data can be obtained and the researcher also becomes a part of the research environment. It is therefore important to be conscious about the role of the researcher in collecting and analyzing data.

My initial research aim was to evaluate the district health information system (DHIS) in Cape Town from a managerial perspective and learn how the information provided by this tool was used for decision making. I thought of using a combination of quantitative and qualitative methods. When I started out my fieldwork, my idea of dimensions on site or scope of the research was rather vague, as were the ideas of approach, methods and selection of participants in the research. The DHIS had been implemented with the aim to inform decisions for managers at all levels, and I was thinking of investigating both the district and facility level and see if a comparison would reveal differences among the users / managers.

After a few weeks of investigation in the field, the research objectives tuned down and changed to focusing on the facility level. I wanted to better understand how health facility managers collect and use information for decision making, with or without using a
computerized information system. I had also learned that there was more than one computer-based information system in the facilities, so my interest was now in all the information that the facility manager used for decision making, and not only what the DHIS provided.

My interests were informed by the field of informatics as well as those of management and linguistics. From the philosophy of language I brought with me an interest in language use and how meaning is communicated and interpreted. The communication of meaning in the texts had triggered my curiosity in reading the HIS and related discourses about information systems and local health care management. Meaning seemed to shift over time and there seemed to be apparent contradictions in the literature. When comparing the empirical field research with the discourse, there also seemed to be a difference in the interpretation of ‘reality’ between the descriptions in discourse and the field study findings. With the ultimate wish to understand the ‘reality’ from the perspective of the users at ground level, I decided to explore and analyse this from the perspective of the facility manager.

My research will fall under the theoretical framework of an interpretive qualitative research approach, but will also have elements of a critical approach. To search for answers to my research questions I started out with an in-depth case study for the field research. The data collection methods included interviews, observations, participation in meetings and documents review. After my return to Norway, the review of HIS literature and HIS project documents led to an extension of the research to include an analysis of the “health information systems in developing countries” discourse.

A set of texts from the “HIS in developing countries discourse” was selected and formed the basis for a discourse analysis. The texts included in the analysis have been published in the time period from 1978 – 2005 and comprise texts from scientific research, policy documents, reports, handbooks and manuals. As a sub-set, a number of HISP writings and related texts were singled out for analytic purposes. These texts were analysed according to a number of core concepts and then compared with the results from the case study.

4.3 Research approach and methodology

Qualitative research focuses on the understanding of research phenomena within their naturally-occurring context. Qualitative research approaches may be action research, grounded theory, ethnographic research and case study. In this thesis I have combined ethnographic research in case study with discourse analysis as modes of analysis.

4.3.1 Case study

Case study is a method of qualitative research particularly suitable for studying small samples in context. A case study is used when the researcher want to explore in depth a program, en event, an activity, a process, or one or more individual (Creswell 2003, p. 15). This was a suitable method for my objective, i.e. to get to know the ‘reality’ as experienced by the facility mangers. For data collection, observations and interviews were appropriate methods.

With the view of IS in organizations as social systems, it was also important to study the facilities (case) in the organizational framework in which they are embedded. Organizational culture and context needed to be explored to better understand the questioned information culture. Documentation from the local organizations as well as participation in meetings
formed a part of the data collection. Notes from the observations and transcripts from interviews are analyzed in combination with other written data sources.

In-depth case studies are an important methodological approach, but in order to be of significant value, in our view, they must address information systems in organizations from the social systems perspective (Walsham, Symons et al. 1988, p 198).

**Sample and criteria**

When setting criteria for the sample of facilities, different strategies were possible. Instead of choosing randomly a number of facilities, a few facilities were selected, representing a broad range of facility ‘types’ where criteria categories for selection was set to be: size (small-medium-large), organization (local or province), socio-economic area (poor-middle class-wealthy), type of facility (clinic – community health centre), experience of manager (> / < 1 year), existence of facility (new = < 1 year, established = > 1 year), uses computerized system (yes/no) and separate or combined services. These criteria seemed to cover the most important properties of the facilities, and to spend some time in each of the facilities chosen would give rich information about this field.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Facility properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Small</td>
</tr>
<tr>
<td>Organisation</td>
<td>Local Authorities</td>
</tr>
<tr>
<td>Socio-economic Area</td>
<td>Poor</td>
</tr>
<tr>
<td>Type of Facility</td>
<td>Clinic</td>
</tr>
<tr>
<td>Experience of Manager</td>
<td>Long (&gt; 1 year)</td>
</tr>
<tr>
<td>Existence of facility</td>
<td>New (&lt; 1 year)</td>
</tr>
<tr>
<td>Uses computerized system</td>
<td>Yes</td>
</tr>
<tr>
<td>Separate or combined services</td>
<td>Separate</td>
</tr>
</tbody>
</table>

**Table 4.1 Criteria for selection of facilities**

The list of the criteria chosen was then sent to the health information managers in LA and PAWC. They were asked to select a number of facilities within their organization that covered a broad representation of the criteria, and then ask the facility managers for their participation. Finally, 5 facilities were chosen; 2 from PAWC, 2 from LA and 1 combined (fully integrated) facility.

4.4 Research methods in field research

4.4.1 Observation

In an observational study, the aim is to gather firsthand information about social processes in a ‘naturally occurring’ context (Silverman 2001). To get better insights in the daily life of a
health facility, I decided to spend one working day in each facility. It would have desirable to spend more time there, but one day would still give an idea of the field I wanted to study.

After the facility manager had agreed to participate, I made an appointment for a day and explained that I wanted to spend the whole day in the facility. I asked for the manager to introduce me to her (they were all women) staff, and then I would just be around for the day.

In observations the role of the researcher may be that of a passive observer only or as a participant more or less. Participant observation is a well-known method in anthropology and is used in longitudinal studies. My involvement in the facility observations varied with the size of the facility and the actual situation that day. In a very small facility it is not possible to be a passive observer as you become very visible when you sit or walk around. A white woman in a solely black or coloured population also calls for attention. I tried to alternate between talking to the employees and to sit down in the waiting rooms or the staff’s rooms, and observe and take notes. I did however not participate in the sense of an action researcher and in the case of longitudinal studies. Because I stayed for the whole day, the interest and awareness of my presence would decrease after some time.

To give the observations some structure, I tried to “follow the patient” from registration through the different stations. During the day I took notes, made small drawings and also took some photographs. I spent some time with most of the employees, from the people in the receptions, the clerks or domestic lady and the security guards, to the nurses and doctors - and with the pharmacist where they had a pharmacy. Sometimes I asked for or was asked to sit by while patients were examined or treated, sometimes this was not appropriate.

4.4.2 Interviews
To find out what people think of their situation, interview is a useful method. Interviews can be performed in different ways, from strictly structured questionnaires to semi-structured or open-ended interviews where two-ways communication is encouraged. It was important to let the interviewees describe their reality with their own words, and I decided to do semi-structured interviews. An interview-guide was developed with some main topics to guide the conversation (appendix D).

When working out an interview-guide for the interviews with facility managers, I originally thought of starting out with the TALI Tool (TT), the self-assessment tool described in chapter 6. I realized however during the observation days, that this tool was unknown to most of the facility managers and to use this would only make them feel not knowledgeable. I then developed an interview guide with a few themes that I wanted the managers to talk about, i.e. their background before becoming the manager of this facility, responsibilities in the planning and management of services, staff and information, thoughts about the usefulness of the information system(s), and thoughts about change and possible improvements.

In performing the interviews, I started out by asking the managers about their professional and managerial background. The opportunity for the interviewees to tell about their education and professional experience created a relaxed atmosphere and gave firsthand information on the issue of managerial experience and knowledge. More as an appendix I asked about the TT later and the issue of self-assessment.
4.4.3 Secondary documents
Documents used by the health services and health information organizations were important sources to understand how work is being organized, data collected and information communicated; from the patient folders to the operational plans. I collected and reviewed several documents, like tally sheets, reports, charts, graphs, RMR data category and item definitions, quarterly and monthly reports to mention some. The facility managers explained to me how they used these documents and what to submit, when and where to. Some of the documents are showed as photos/figures in presenting the case; some are included in the appendixes (see appendixes F 1-4, G, H, I and J).

4.4.4 Research documentation methods
At the end of the observation day or the next morning I reviewed my experiences for that day and made more detailed notes. The field notes from the observations followed a standard template worked out in advance to ease the coding and analysis of the data later. These observations gave important background information for an interview with the facility manager a few days later and also open up for permission to tape-record the interviews.

On the day of the interviews I made a short resume of the audio-tape and later they were transcribed verbatim. Tape-recording interviews gives the opportunity to concentrate on the talk and listening in the interview situation instead of taking field notes. Although non-verbal communication is not covered, you do get a lot more information than by only reading notes. The tapes are very informative when hearing the voices of the interviewees later. Situations, personalities and voices are recalled in your mind and add valuable information when analyzing the material. It was also possible to return to the tapes when, in the process of organizing and analyzing the data, new questions and ideas turned up. Transcription is a very time-consuming method and it is of course a question if it pays off. I found it however to be worthwhile.

Together with field notes from observations and meetings, drawings and photos from the sites and the organizational documents, they formed the basis for analysis of the case study.

4.5 Organizational culture and context
Through interviews with the information managers and participation in meetings and courses, I achieved some insights in the structures of health services, health information management, and also the problems in the field. My local supervisor at the University of Western Cape provided more detailed information about the health services and health information systems in Cape Town. He also helped in establishing contact with key people in the Local Health Departments of the City and the Province.

The enduring organizational change of the formal structures at all levels in the health care service delivery made it difficult to get a correct picture of the current structures and I was strongly recommended by the people I met with, not to try to understand how things were connected. I did however, after every meeting, draw a ‘map’ and implement the information given (see figure 6.5). When I met with the next informant; I showed my ‘map’ and asked if I had got this right and if he/she had anything to add. Most people had comments, and thus in the end I got at least a working-tool of a picture of the field I wanted to explore.

Other documentation from the fieldwork was notes from those meetings and written documents from the places I visited, like minutes from quarterly and monthly facility
managers meetings, strategic plans for province or district. Photographs from sites and meetings give a different way of viewing the context.

4.6 Modes of analysis

Qualitative research is fundamentally interpretive, which means that the researcher makes an interpretation of the data. The data will be a description of a setting and the data are analyzed for themes or categories (Creswell 2003). To make sense of the data I had collected, a review of notes and transcripts was necessary to look for themes, concepts and patterns. I had 2 sets of texts from fieldwork and discourse and they are a good complement to one another.

4.6.1 Case study analysis

To understand the situation of the health facility in its context, a broad description of the health care services and health information management organizations in Cape Town is given. Organizational change in the overall reconstruction of the health services and ICT as a tool for change in Cape Town is also included in this description. The texts (including photos), i.e. transcripts from interviews, field-notes from observations, minutes from meetings and courses, and secondary literature from Cape Town are analyzed according to a set of themes related to management, power distribution, decision making and use of information.

As I have chosen to interpret the collected data from the perspective of the facility manager, long excerpts from the interview transcripts are used to let the reader get close to the managers’ own descriptions.

4.6.2 Discourse analysis

Discourse analysis is a methodology within qualitative research concerned about the constructive effects of language – how talk and text – in a certain context constructs a social reality, i.e. language is more than a reflection of reality; it is constructive of social reality (Potter 1996; Phillips and Hardy 2002).

...; with its emphasis on reflexivity, discourse analysis aims to remind readers that in using language, producing texts, and drawing on discourses, researchers and the research community are part and parcel of the constructive effects of discourse (Phillips and Hardy 2002, p. 2).

There are many definitions of discourse and discourse analysis. I will use the definition of discourse from Phillips & Hardy (2002, p. 19): “An interrelated set of texts, and the practices of their production, dissemination and reception, that brings an object into being”. ‘Texts’ are here understood as more than written material. Talk and photographs are also ‘texts’ and these texts can only be understood in its context.

Discourse analysis aims to explore the relationship between discourse and reality. As an example, Phillips & Hardy refer to how the collection of texts of various kinds that make up the discourse of psychiatry brought the idea of an unconscious into existence in the 19th century (Focault 1965 cited Phillips and Hardy 2002).

There are different approaches and traditions in discourse analysis. Phillips & Hardy (2002) divide between constructivist approach, that produce exploration of the way in which a particular social reality has been constructed, and critical approaches, which focus more implicitly on the dynamics of power, knowledge and ideology that surround discursive processes. Both approaches may, however include a concern for the other, and this analysis will have elements of both approaches.
In a work on refugees in UK, Phillips and Hardy (1997, 2002) examine how the concept of a ‘refugee’ is discursively constituted and also how the identities of organizations within the UK refugee system were constructed. In my study, I found that the way facility managers were described in the discourse interesting, and I was particularly having this in mind when interviewing the managers, as I wanted to compare the findings in the discourse and the fieldwork. I do however not go in depth on the particular issue of identity in my analysis.

Traditional qualitative approaches often assume a social world and then seek to understand the meaning of this world for participants. Discourse analysis, on the other hand, tries to explore how the socially produced ideas and objects that populate the world were created in the first place and how they are maintained and held in place over time (Phillips and Hardy 2002, p. 6).

Literature related to health information systems in developing countries and primary health care formed a greater part of my preparations for the field-study in Cape Town, and more literature review followed after my return to Norway. When I decided to do a discourse analysis, the literature review was extended and the texts systematized. I defined a bounded subset of the ‘HIS in developing countries’ discourse, published in the time period from 1978 – 2005 and as a subset of this, a selection of texts from the different actors within the HISP project. This particular selection of texts comprises a set of texts different from the overall bibliography.

In the literature review prior to my trip to Cape Town, I also learned about other projects and organizations than HISP, involved in the development and reconstruction of the health system and the health information system in South Africa. These actors also play a part in the discourse analysis.

A strategy in the discourse analysis has been to single out core concepts, i.e. decentralization, participation, empowerment and ownership, and then try to recognize ‘voices’ in the material, ‘voicing’ the interest of the different participating actors in relation to those concepts. The method used in conceptualizing the group of actors as ‘voices’ is described in more detail in chapter 5.6.4.

4.7 Validity and reliability

The issue of validity is usually posed in terms of what constitutes a credible claim to truth (Silverman 2000, p. 91), and Hammersley (1990) describe validity as “(...) interpreted as the extent to which an account accurately represents the social phenomena to which it refers (Hammersley 1990 cited Silverman 2000, p. 175). The attempt in this case study has been to provide an interpretation of ‘truth’ from the perspective and with the words of the participants.

Reliability refers to “(...) the degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions” (Hammersley 1992 cited Silverman 2001, p. 225).

Some social researchers argue that a concern for the reliability of observation arises only within the quantitative research tradition, and once we treat social reality as always in flux, it makes no sense to worry about whether our research instruments measure accurately (Silverman 2001, p. 226). Silverman contradict this view, and argue that, in referring to (Kirk and Miller cited Silverman 2001), high reliability in qualitative research is associated with what Clive Seale calls low-inference descriptors. This involves:
Recording observations in terms that are as concrete as possible, including verbatim accounts of what people say, for example, rather than researcher’s reconstructions of the general sense of what a person said, which would allow researchers’ personal perspectives to influence the reporting (Seale 1999 cited Silverman 2001, p. 226).

Triangulation, i.e. the use of more than one method for data collection, and comparing different kinds of data, is seen as one way of reducing subjectivity and bias in the data analysis; although this is also questioned by some researchers (Silverman 2001, p. 233).

The data analyzed in this study are collected with multiple methods and consists of:

1. field notes from observations in facilities
2. photographs and drawings from the research sites
3. transcripts of interviews with facility managers
4. field notes from meetings, courses and interviews with key people in the information management in Cape Town
5. secondary literature from the health and health information organizations.

This material constitutes a broad description of the research field and forms the basis data for the analysis. The use of discourse analysis as an additional method and mode of analysis and the development of concepts, such as ‘information culture’ has, in combination with case study provided a complementary way of interpreting and analyzing the ‘reality’ for the facility managers.

4.8 Limitations related to research methods

Qualitative research is fundamentally interpretive which means that the researcher makes an interpretation of the data. It also means that the researcher filters the data through a personal lens (Creswell 2003, p. 182). In this the role of the researcher is important. With the assumption that there is no objective reality to explore, the researcher can never assume a value-neutral stance. In an in-depth case study like this, I came close to the participants and it is important to be conscious about the relation you establish and one’s own role as researcher. How questions is formulated and communicated will also influence the responses.

I had the advantage of having experienced the practitioner’s every day situation from earlier professional practice, a fact that I think worked as a door-opener. This involved however also the risk of over-identifying with the respondents in the field. A strong professional identity could bias my interpretations of the ‘reality’ I observed. I had to weigh the advantage of breaking through the barrier of alienation from the health workers towards the academic people against the risk of a biased interpretation. In transcribing the interviews and later in the analysis, this was important to keep in mind, also when I decided to do the analysis through the lens of the facility managers.

The issue of generalization from a single in-depth case study is discussed in Walsham (1995, p. 79) and he suggests 4 types of generalization from interpretive case studies: the development of concepts, the generation of theory, the drawing of specific implications, and the contribution of rich insight. In this study the objective has been to give a rich insight in the management and use of information at facility level, and I hope that this insight will be a contribution to the IS research that may be useful also in other settings. The intent of my
research has also been to provide a better understanding of the role of the facility manager and his/her relation to and use of information for management, from the perspective of the facility manager.

4.9 Ethics

A letter asking for approval of my research was sent to the Health Directors both in Province and City, and this was granted (appendixes 1-3) on the following terms:

1. All individual patient or staff information obtained must be kept confidential.

2. Informed consent must be obtained for interviews.

3. Ethics approval for your research should have been obtained from a relevant institution’s Ethics Committee.

4. A copy of your final report should be sent to the Health Directorate within three months of its completion and a feedback session to the services and staff should be held.

5. Access to the clinics and its patients should be arranged with the relevant managers such that normal activities are not disrupted.

To obtain permission from the persons participating, I wrote a general letter “To the facility manager” (appendix 4) where I presented myself and the objective of my research, asking for participation. This was then distributed from the health information managers in LA and PAWC respective to the Area managers, who gave the permission to contact a number of facility managers. Next, I called selected facility managers and made appointments. It turned out that not all facility managers were informed about my field work and research objectives, but after a presentation of this and what it would imply for them, they all agreed on the observation and interview. Tape-recording interviews require acceptance from the interviewees. This was granted from the participants when confidentiality was assured.

Feedback to Health Directorate (LA), services and staff is expected after the completion of the thesis and feedback was also wanted by facility managers. A copy of the thesis will be sent to the LA and PAWC. My aim is to send a brief summary of the results to the participating facility managers, information managers and researchers who kindly shared their knowledge and insights with me.
5 “Health information systems in developing countries”- a discourse analysis

Discourse is what constitutes our social world. The etymological meaning of the term ‘discourse’ is ‘to run, to enter, to and fro’. In other words, to discourse is to run to and fro and in that process create a path, a course, a pattern of regularities out of which human existence can be made more fixed, secure and workable (Chia 2000, p. 517).

This chapter explores a body of texts within the ‘information systems in developing countries’ discourse in a particular social and historical context, i.e. from 1978 (WHO declaration Alma Ata) - 2005. The chapter is organized as follows: First, I describe the motivation for doing a discourse analysis as an additional method in this thesis. Second, I draw the boundaries around the body of texts that has been included in the discourse, the different categories of texts and their contributions, and I give a more detailed description of the different categories. Third, I categorize the actors (and stakeholders in the discourse) into institutional groups (politicians, researchers, donors and NGO’s) and explore their interest in the field. Fourth, I analyze the texts according to a set of concepts and themes that are central in the discourse. Finally, I look at some consequences for action and research approach in the field. The results from this analysis will be included in the discussion in chapter 7.

5.1 Why discourse analysis?

Prior to, during and after my research study in Cape Town, I read a considerable body of literature related to health information systems in developing countries, management of health services and health information systems in general, and the HISP initiative in South Africa in particular. This literature was an important source to get to know this domain. What triggered my curiosity in reading those texts was, among other things, how, in relatively recent literature, references written 10 to 20 years earlier, were used in analyzing today’s situation and thus used as evidence for the need for research and development of health information systems, and also for arguing that information is not used by local health workers to inform decisions. An example: in a paper written in 2005, when listing problems related to breakdowns of HIS, the reference is back from 1993. The argumentation is then later repeated in research literature, proposals and PhD and Master thesis up to now, somehow confirming these early findings, without questioning the ‘facts’ or asking for a more explicit definition of the concepts, like ‘information culture’. I thought this ‘recycling’ of the literature may have played a role in shaping students (researchers) perception of what they see in the field and their approach in research.

The concept ‘information culture’ was sometimes introduced as if it was a global, well known and established concept and used without elaborating or discussing a definition of it, or it was given a very narrow definition, grounded in the routine health information domain. ‘Use of information’ was the prerequisite for an existing information culture. Although the importance of viewing information systems in a social context is repeatedly emphasized in the literature, the health work practice seemed not to be included in the ‘information culture’ assessment. In their article, ”Computerization and Women’s Knowledge”, Suchman & Jordan (1989) present a case about Maya obstetrics, illustrating what they call “the fallacy of the empty vessel”, that is the belief by those who design new technologies that there is nothing there in advance of their arrival. In introducing ICT and the DHIS in Cape Town, it seems to be a parallel when speaking of information use and information culture. The actual situation is
described as there was “a need for creating an information culture” (Williamson, Stoops et al. 2001; Campbell 2003), which implies that there was no existing information culture to build on. I missed reports from the field that described the development that I thought must have happened locally, in the course of time since Opit (1981) and also since the first initiatives and pilot projects of HISP had been carried out in the 1990’s.

There was also an apparent contradiction in the description of the local level in PHC as unknowing and not using information on the one hand, and the description of a successful HISP project on the other hand; a project which had been implemented with the aim of empowering people at local level and contributing to the development of an information culture. These texts created the picture of managers at local level in PHC without knowledge, skills, motivation and understanding of the need for, or use of information for decision making, in their provision of health services to the people. I thought that this description of facility managers as not knowledgeable might have negative implications when building relations at local level. As this research field was completely unknown to me before I started out with my master study, these images constructed by the literature was what I brought with me as a backdrop in entering the research field. I was curious how I would experience ‘reality’ in meeting with people in the field.

The initial aim of my thesis was, through field observations and interviews, to analyse use of information at local level in PHC. What I had found in the literature triggered my curiosity because the results of my field work gave a different picture of the ‘reality’ than what was described in the texts. After my return from Cape Town I returned to the literature and was struck by the differences I found between my fieldwork results and the reality as seen from the perspective of facility managers and the reality described in the literature. This caused an extension of my research inquiry to include a discourse analysis and later a comparison between the two ‘realities’.

In the discourse analysis I am concerned with the constructive effects of the texts. I want to explore how discourse can be used to create different ‘realities’ depending on ‘who tells the story’. By exploring these discourses, I have tried to understand how the picture of the health facility managers as people with no managerial competence has come about, and the almost unanimous view among the authors that facility managers do not use information to inform decisions.

In chapter 6, when I analyze the results from my field work, I will use transcripts from interviews with health facility managers and other field work material as a second set of texts, to see this from the point of view of the local context and the facility managers, and show how ‘reality’ looks different from their perspective.

5.2 What is this discourse about?

A discourse will always be a part of a wider domain and will draw on other discourses, and it may be difficult to draw the boundaries and decide what to include and what to leave out to get a manageable amount of texts. This discourse will be about health information systems in developing countries, and the texts included have been published in the time period from 1978 - 2005. The Alma Ata Conference in 1978 launched “Health for all by the Year 2000” as a goal for the member states of the World Health Organization and its Declaration (WHO 1978) marks a starting point for the development and restructuring of health care services in South Africa among many developing countries.
As a sub-set of this, a selection of texts from different actors within the HISP project will be given special attention (referred to as HISP discourse). From the start in South Africa, HISP has spread out to several other developing countries and there are many contributions to research from these countries. My focus will be on South Africa, because this is where I have my research site, and also because the situation in other developing countries will be different. For the purpose of the analysis, I will however, also refer to selected research carried out within the HISP projects, where the field work is from other developing countries. I will also include material from the general discourses of organization studies, health management and health information systems, some of which are going back to the 1980’s (referred to as ‘general discourses’). I will delimit the general discourse to texts used as references in the HISP discourse.

The discourses (and research) interact in a way that can be seen both as a dialogue and a spiral movement; from the existing knowledge in the field, new research questions and research actions, to the experiences and findings that bring new knowledge and lead the research and practice to higher levels of understanding and knowledge.

![Diagram](image)

**Figure 5.1: the discourse dialogue and spiral effect (inspired by Nonaka)**

One thing about the relation between HISP and general discourses is however, that there seems to have been no such spiral effect with regard to the ‘information use’ and ‘information culture’ at the facility level.

### 5.3 The different categories of texts and their contributions

The textual material includes a broad range of scientific research literature: books and chapters in books, conference proceedings and articles published in professional journals, PhD and Master thesis. Research proposals, handbooks and tutorials related to the development and implementation of health information systems will also be included as well as policy documents and ‘White Papers’ from the South African Government as they constitute the basis for the HIS development in the country.

The participating actors in the discourse can roughly be categorized in four groups: The South African politician, the general researcher, the HISP global and the South African actor. The
editors and authors of the textual material may represent different groups of stakeholders in the different texts and they aim at different target groups. With the underlying assumption that discourse creates, not describes, a social reality and that there is no single ‘objective’ reality, one may expect that the different actors will have different perspectives and interests, and thus constitute different ‘realities’ in their writings. This becomes evident, for example, when reading the evaluations that have been performed by the different actors, using different tools for assessment. ‘White Papers’ and strategic plans from the political authorities give their overall visions for the people and in their own evaluations, though they may admit that the progress do not go as fast as planned or wanted, they also have the need for showing that the development goes in the right direction.

Whilst we are justifiably proud of our achievements we need, in the next five years to work hard with our partners to strengthen the health system so that we can provide accessible, good quality health services to all (Department of Health 2004, p. 3).

Handbooks and manuals for health planning and health information systems development, written by the developers, tend to describe the weaknesses of today’s information systems and claim that, after working through their manual, one should be able to use information to make informed decisions, thus pointing to the need for their services. Research proposals may emphasize certain issues in the current situation and leave others out to justify why this research project is important and will be a good candidate for funding from the donor agency. These groups have ‘the right to speak’ in the discourse and thereby have the power to legitimate a certain social context.

Table 5.1 gives a schematic overview of the different actors, their perspectives and how they describe local health care workers and the information culture.
<table>
<thead>
<tr>
<th>Actors / text category</th>
<th>purpose / perspective / contribution</th>
<th>description of local health care / workers / information culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy documents and ‘White papers’ from political authorities</td>
<td>policy objectives and principles - mission and vision</td>
<td>Proud of achievements so far. Development of a HIS will facilitate health planning and management. Important for resource allocation, equity and quality of care</td>
</tr>
</tbody>
</table>
| Scientific research:  
  - journal and conference articles  
  - books and chapter in books  
  - Master and PhD thesis  
  - conference proceedings                                                           | Field studies, new perspectives, adding new theory and knowledge, but often referring to other thesis, confirming and repeating more than bringing new knowledge | -lack of knowledge and understanding among local health managers, no use of information for decision making, no information culture |
| Research proposals and project reports                                               | Situation analysis and need for intervention, action, research – and funding, and/or describes projects that have been performed and the results | -lack of knowledge and understanding among local health managers, no use of information for decision making -implementation of DHIS has proved success |
| Evaluation reports by different stakeholders                                         | Different strategies and goals for evaluation; DoH concerned about national goals,  
  HISP concerned about use of DHIS information,  
  HST/ISDS more at local level health care services and quality                             | -local evaluation from HISP SA people: limits to evaluation of DHIS software package and training sessions,  
  -global HISP: lack of information use, need for training and further research  
  -local evaluations from HST/ISDS – what is achieved and what are the challenges ‘voiced’ by facility managers and workers |
| Handbooks and Manuals for health planning and health information systems development: | Describe today’s situation, goals and objectives and give more detailed help in ‘how to get there’. | Describe ‘the weaknesses of IS’ as of today. After working through the manual, people should be able to use information to make informed decisions |

Table 5.1 Text categories and their contributions
5.4 The general discourses of organization, health management and health information systems in developing countries

The general discourses of organization theory, health management and health information systems are what set the HISP project in motion. They also form the policy and the theoretical basis for the HISP development. Early projects and research describe the situation in the health sector in developing countries, the need for reconstruction of health service structures and improvement of health care delivery. The discourses emphasize how information is seen as a key instrument to achieve this (Boerma 1991; Cooke and Henderson 2000; Sauerborn and Lippeveld 2000).

The Declaration from the International Conference on Primary Health Care in Alma Ata in 1978 (WHO 1978) is one of the most quoted in this literature about health care and health management as it outlines the objectives and the strategies for achieving quality and equity in primary health care. ‘Decentralization’ is a keyword and a decentralized primary health care with focus on districts is a recommended strategy.

The early literature from the 1980’s about health planning and management clearly underlines the crucial role of information for planning and decision making in the management of health services, and give general models for analysis and planning. It also gives many examples of how health care organizations collect information without using it for management. These examples are often quoted in the HISP discourse. The general discourses also contain issues about management levels, decision making authority and empowerment that is not emphasized in the HISP discourse. Lippeveld and Sauerborn (Lippeveld and Sauerborn 2000) give an organizational model of the health services, the functional levels and the management functions on each level (see section 2.2.1). For the first level care units (facilities) at primary level, patient management is the main responsibility.

The main patient management function is to provide quality care to patients and clients, curative as well as preventive and health-promotional, at the first level as well as at the referral level (Lippeveld and Sauerborn 2000, p. 19).

This fact is emphasized by many authors (Abrantes 1987; Braa 1997a; Saperie 2001; Walsham 2001a) also within the HISP discourse, although when discussing non-use of information at local level, patient information and patient management is rarely mentioned in the HISP discourse.

Decentralization and empowerment of local health workers are other central issues in the general discourses as is decision making and decision making power. In discussing information and organizational choice, Feldman and March (1981, p. 172) state that: “Information has value if it can be expected to affect choice”, an important statement when discussing decision making.

In his article “How should information on health care be generated and used?” Opit (1987) is often quoted for “Finagle’s Law”: “The information you have is not the information you need, and the information you need is not the information you can get” as an illustration of the existing dysfunctional information systems. The same article also has sections discussing “Delegation of authority and resources” and “Hierarchies of information” where it is pointed to the different need for information at the different levels in the health services hierarchy.
In this way, health management information should reflect and correspond to the hierarchical decision framework in the health care system. Thus, at local level, decision making should be programmed to ensure the quality and appropriateness of the health care functions in both treatment and prevention (Opit 1987, p. 415).

In his ‘Keynote’ at the opening of the RHINO conference in Potomac, USA, 2001, Lippeveld gives a broad statement about routine health information systems, looking at the challenges for future development. He discusses several topics and he is most quoted for what are the problems in the existing HIS: “What is wrong with existing routine health information systems?” (Lippeveld 2001, p.19). In this keynote he has again modelled the relations between the health system and the routine health information system, where he points to the different levels of services and the different objectives and tasks for the management at each level.

First-level care units provide a package of general health care services (….)

To be relevant, a health information system must fit into the organization of the health system for which it generates information (italics in original). Based on clearly defined management functions, identifying the information needed to make appropriate decisions at each management level is relatively easy (Lippeveld 2001, p 16, italics in original).

The questions of (1) use of information for decision making and (2) what kind of decision making power the facility managers have, are closely related, and will be discussed in chapter 7.

When reading the general HIS discourse, it seems that the problems and functioning of local health services and meeting the challenges in health services delivery at local level, has become a question of decision making and use of statistics for planning and management and not a question of patient care and patient management. Thus it calls for new solutions and new tools, i.e. information systems and computer based tools for decision making support. The goal of ‘quality of care’ can now best be reached by using routine information for decision making. HIS are seen as a major tool to meet the huge challenges for the health sector in terms of TB, HIV/AIDS and malnutrition. This has prepared the way for the HIS project and the development of a district health information system (DHIS).

5.5 The HISP discourse

Literature related to the HISP global project in the time period from 1994 – 2005 forms a subset of the discourse of health information systems in developing countries. Contributions from actors within this project form a greater part of the discourses. HISP, South Africa has since the democratic elections in 1994 been involved in the Governments planning and reconstruction of the health system in South Africa, and in a time-line, 1995 will be the starting point for the texts included in the HISP discourse. In a “lessons learned” paper Heywood (1997) describes an earlier and similar project from Ghana and the experiences acquired from this project are included in the discourse.

There are a number of researchers involved in HISP linked to the participating universities, who are the driving forces in the ongoing research. They are contributing to the discourse by research proposals, papers to international journals and papers for presentation in international conferences. PhD students from these universities are part of this. As HISP is an action
research initiative, these students are at the same time involved in the development and deployment of the DHIS in their respective countries. There are also local health administrators and health information administrators in the developing countries that are contributing to the HISP discourse in different ways. Some of the local (SA) HISP actors, the so-called Facilitators, are employed by HISP to give training and help with support, implementation and use of the DHIS. Some of the Facilitators are also doing research, and they may have more critical evaluations of the relative success of HISP – something that is not mirrored in the global HISP discourse. Their situation analysis and evaluation are however mostly constrained to the routine information provided by the DHIS and the use or non-use of the information that this software can provide, which is an important source, but still a very narrow scope in the need for information for a facility manager.

A number of Informatics Cand. Scient. and master students from Norway form a special group and have been involved in different stages of the HISP project. They have had different approaches in their studies, from the more technical, software development approach - to evaluation in the later years. They have mostly been directly involved as ‘action researchers’ in the HISP context. The actors will be described in more detail in section 5.6.

HISP literature build on the general discourse as described in section 5.4 and emphasize the need for IS and ICT to cope with the challenges in the enormous task of organizing the health services for the people in South Africa. This has formed the basis for development of the HISP project and development of the District Health Information Software, in close co-operation with the National Health Department, South Africa:

A Government of National Unity took over in 1994 and through the Reconstruction and Development Program (RDP) the Department of Health has given the following tasks top priority:

- To draw all the different role players and services into a unified National Health System under a single decentralized Ministry of Health;
- To use the PHC approach with a focus on community participation and intersectoral action; and
- To create health districts responsible for implementing and managing PHC.

To support these developments and to make rational planning possible, it was seen as essential to introduce an effective National Health Information System for South Africa (NHISSA) (Braa, Heywood et al. 1997).

In the planning process, decision making in health care provision has been made a key issue, and related to the political development and planning process. In the struggle to work towards their goals, the authorities also were dependant on financial support from donor agencies. Thus close relations were established between political and administrative authorities, research and international donors.

Important issues in the general discourses are left out of the HISP discourse, or are seldom used in discussions around use of information and information culture. HISP discourse describes what is wrong in the existing health and health information practice and refers to general discourses when describing ‘reality’ in terms of lack of information use and information culture. The advantages of ICT and health information systems are presented and thus the need for intervention. Figure 5.2 shows HISP and related discourses in a time-line.
Figure 5.2 Selection of HISP and related discourses in a timeline
Figure 5.3  Web of actors in the "Health Information Systems in Developing Countries" discourse
5.6 The actors

In the general discourses and in the HISP discourse there are a number of actors participating in different organizational settings. The ‘research group’ is comprised of researchers representing academic institutions, international conferences (IFIP, RHINO, HELINA, IRIS) and organizations engaged in public health, health informatics and organizational issues. Some of the actors are only represented in the general discourses. Others, like the initiators of the HISP project, have been and still are deeply involved in the coordination and further development of health information systems in developing countries in Africa and other continents. These actors contribute to the general discourses as well as to the HISP discourse.

“A National Health Plan for South Africa” is developed with the aim of restructuring the health services in the country (ANC 1994). This is a huge challenge, and the National Health Department (NDoH) has a web of collaborating organizations to work towards their goals. The government is dependant on financial support from international donors to carry through the RDP within the health care sector. International organizations and donor agencies like WHO, the World Bank and different NGO’s are thus important parts of the picture and their goals and approaches will have a possible impact on the decisions made by the NDoH. Donor organizations may channel their aid to a single aspects of the HIS development (for example computers) and thus leave other elements weak (Gouws and Gregory 2005). In a report on HISP and EQUITY in SA it is described how USAID through the EQUITY project state the premises for investments in computers, thus delayed the developing process extensively and “turned out to be highly counterproductive, disempowering and a considerable embarrassment to both EQUITY and USAID” (Wilson and Gouw 2003, p. 34).

Independent non-governmental organizations (NGOs) in South Africa like ‘Equity Project’ and ‘Health Systems Trust’ with its ‘Initiative for Sub-District Support’ also contribute to the discourses and publish field research and policy articles. “South African Health Review” is an annual publication published by Health Systems Trust where different aspects related to the South African health system are discussed.

People involved in HISP global and HISP SA are to some extent a leading force in writing about information systems in South Africa and their writings are represented in different settings: research results published in various publications, conference proceedings and reports in the general research arenas, chapters in the ‘South African Health Review’, User Manual for facility workers (UWC and Equity Project), HISP reports to government and donor organisations on the development of the national health information system (NHISSA). Thus they have great impact on how the discourses create the picture of the local health services, the use of information and the need for information systems respective.

The figure 5.3 visualizes this web of actors in the discourses and how they are interrelated in different ways. These actors all have a vision of improved health for the South African people, although from different perspectives. One might also expect that the different groups have different organizational interests in the restructuring and development of the health sector and that these interests will influence their initiatives and writings. In defining the strategies for the
reconstruction of the health sector, and appropriate tools (i.e. health information system) to achieve equitable and quality health care for all, they also define their own role and position in the discourse (Phillips and Hardy 1997). When for example WHO introduced PHE approach, restructuring of health service organization, Reconstruction and Development programs are developed. There was more focus on costs in health sector, and the need for efficiency. The need for information, statistics for planning is emphasized. This is used in research proposals and used as argument for introducing computerized information systems. The introduction of computers and what computers could do for health care provision became central.

Each of the actor groups, i.e. ‘research’, ‘NGO’s’, ‘South Africa politician’, ‘HISP’ and HISP South Africa has a number of stakeholders and in this section I will give a brief narrative description of some of the main actors in the different groups.

5.6.1 South Africa

All the discourse actor groups have participants from South Africa and the South African public health sector is focus for the discourse practice.

The National Department of Health (NDoH)

NDoH is both providing goals, mission and vision and give the direction and plan for development of the health sector including a health information system. After winning the election in 1994, the African National Congress (ANC) developed “A National Health Plan for South Africa” and by that marked the course for the restructuring of the health services organization in South Africa. The primary health care approach was chosen as recommended by the World Health Organization (WHO 1978). To strengthen community services, a National Health System was to be developed and the bearing unit in this would be the District and a District Health System (DHS). In managing the DHS a National Health Information System would be established. NDoH builds on the National Health Plan for SA and released in 1997 the “White Paper for the Transformation of the Health System in South Africa” with the objective “(…) to present to the people of South Africa a set of policy objectives and principles upon which the Unified National Health System of South Africa will be based.” These papers provide the basis for development of a health information system.

Cape Town Local and Provincial Authorities

Cape Town is the capital city of Western Cape and a Health District on its own. The Health Services Management and Health Information Management Structures will be described in more detail in chapter 6. The City of Cape Town Authorities (CoCT) and the Provincial Administration (PAWC) in the City give the local goals and objectives both for information technology, the health services and health information administration in the Metropole and thus are key stakeholders in the local development of the health services and health information system.

Health Systems Trust (HST)

HST is an independent NGO established in 1992 to support the transformation of the South African health system. HST is funded by Kaiser Family Foundation, NDoH SA, and The Kagiso Trust. HST is guided by an independent Board of Trustees, which comprises a diverse group of leaders with professional standing and expertise in health systems development and public health. HST has a sound working relationship with the Department of Health, and also works closely with parliamentarians, academic and research institutions, and civil society.
Initiative for Sub-District Support (ISDS)

ISDS is an initiative within HST and aims at improving the quality of primary health care by empowering both clients and providers through facilitation and support. ISDS now works in over 20 districts throughout South Africa and currently (2003) focuses mainly in the 13 most disadvantaged rural districts in South Africa, designated as part of the Presidential Lead Project to improve the lives of the most disadvantaged. One of the key roles of ISDS is to evaluate the process, document and share lessons learnt with relevant stakeholders such as sub-district, district and provincial managers in order to assist policy and implementation. Another important role is monitoring improvements at district level in key focus areas such as HIV, Sexually Transmitted Infections (STI), TB, Mother and Child Health (MCH) and nutrition.

The EQUITY project

The EQUITY Project mission was one of collegial empowerment building capacity in the Eastern Cape Department of Health. The South African EQUITY Project was a seven-year (1997-2003) partnership between the Department of Health (DoH) and Boston-based Management Sciences for Health (MSH), funded by the United States Agency for International Development (USAID)/ South Africa. The EQUITY Project worked to ensure that clients at all levels: community, district, regional, provincial, and national - benefit from sustained improvements in health services. Evolving from an initial concentration on the Eastern Cape Province, the EQUITY Project also worked in the Mpumalanga, KwaZulu-Natal and North West Provinces. Equity and USAID was funding the national roll-out of HISP software, processes and models 1999 – 2003.

HISP South Africa

The HISP project was initiated in Cape Town 1994-95 as part of the ANC government’s Reconstruction and Development Program. HISP and its history and development are described in earlier chapters. HISP global network is comprised by several of the institutional actors (Universities, IFIP, RHINO) and is a main contributor to all discourses. HISP South Africa (since 2004 established as a not-for-profit organization) contributes to the discourses by its South African representatives in research and administration, publishing in the South African Health Review (SAHR) as well as in conferences and journals. HISP SA personnel also do PhD and Master Studies often within collaborative projects between Norway and other developing countries and as such also contribute to the research discourse.

5.6.2 Research

The University of Western Cape, School of Public Health (SoPH) has been a collaborating partner for the University of Oslo and a base in South Africa for joint research projects and is represented both in the research group and HISP SA. SoPH has been the secretariat and main actor in a larger network of institutions and projects involved in the national HISP rollout and on education and training in health and management information systems.

The University of Oslo, Department of Informatics (IFI) has since early nineties been involved in the research, development and implementation of health information systems in a third world context. The Information Systems Research Group at IFI has been responsible for coordinating the global HISP network. The research has had an action research approach and has been focusing on participatory design (the Scandinavian approach). There have been a number of professors, PhD and master students involved in different stages of the research
projects and they have all contributed to the HISP discourse as well as to the general research discourses.

**The Routine Health Information Network (RHINO)**

The RHINO Network is comprised of developing country governments, donor agencies, technical groups, and Private Voluntary Organizations (PVO’s). The MEASURE Evaluation Project (USAID-funded), the World Bank, and John Snow, Inc. have created the network in order to promote high quality and practical approaches to the collection and use of routine health information in developing countries. The Network seeks to strengthen the role of evidence-based decision making in the health sector in less developed countries and improve overall planning and management of health activities through engaging in coordinated discussion and action on the collection and use of routine health information (RHINO 2001, p. 1). RHINO has also introduced an on-line discussion forum, the “RHINO On-Line Forum” for discussion of Routine Health Information Systems. The aim is “to promote communication among professionals interested in routine health information, collection, and use throughout the world”.

**International Federation for Information Processing (IFIP)**

IFIP is a NGO, non-profit umbrella organization for national societies working in the field of information processing. It was established in 1960 under the auspices of UNESCO as an aftermath of the first World Computer Congress held in Paris in 1959. Today, IFIP has several types of members and maintains friendly connections to specialized agencies of the UN system and NGOs. Technical work, which is the heart of IFIP's activity, is managed by a series of technical committees.

**Management Sciences for Health (MSH)**

is a private, non-profit educational and scientific organization working to close the gap between what is known about public health problems and what is done to solve them. MSH is sited in Boston, US and has a wide range of donors including the WHO and the World Bank. Since 1971, MSH has worked with its worldwide partners to improve the management of and access to health services such as primary health care, child survival, maternal and child health, family planning, and reproductive health. MSH shares its expertise and experience through technical assistance, training, applied research, publications, and fellowships.

**5.6.3 Donors, NGO’s and other international organizations**

There are several NGOs and donor agencies involved in the rebuilding of the health sector in SA, and many of them cooperate with the SA Department of Health, and the HISP project and their researchers in one way or the other. These organizations are seated in different parts of the world; in Europe, United States and South Africa. Their contribution in financing this development is crucial and gives a basis for the restructuring and development of the health sector and the health information systems. Their requirements or how they channel their aid will have an impact on the governmental strategies for action and vice versa. By for example introducing computers and emphasizing their importance in improving health services, a tool is provided that is easily embraced by the donor agencies. This fact will in turn have an impact on the way forward, chosen by the authorities. The donors purchasing regulations can also turn out to be counterproductive and disempowering as described in a case study from South Africa (Wilson and Gouw 2003) where the Equity project (USAID-funded) because of US government procedures had to purchase equipment in the United States which caused severe delays and other negative effects.
World Health Organization

The World Health Organization (WHO) is the United Nations specialized agency for health. It was established on 7 April 1948. WHO's objective, as set out in its Constitution, is the attainment by all peoples of the highest possible level of health. Health is defined in WHO's Constitution as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. In the 1978 Alma Ata Conference a Global Strategy for Health for All by the year 2000 was developed. The Alma Ata Declaration has been the main premise provider in the development of Primary Health Care in developing countries. WHO gives the annually “Report of the World Health Situation” and provide statistics, strategies and recommendations for the world health care.

World Bank

The International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA) together make up the World Bank. The World Bank Group is an international financial organization whose mission is to fight world poverty and improve the living standards of people in the developing world. It is a development Bank which provides loans, policy advice, technical assistance and knowledge sharing services to low and middle income countries to reduce poverty. The Bank promotes growth to create jobs and to empower poor people to take advantage of these opportunities. Together with WHO, the World Bank is giving the premises for restructuring and development of the health sector (among others) in developing countries. Annually reports and evaluations of progress are forming a basis for the developing countries on which they should build to receive the financial support.

NORAD

NORAD is a directorate under the Norwegian Ministry of Foreign Affairs (MFA). Its most important task is to contribute in the international cooperation to fight poverty. NORAD provided funding for the first main phase of HISP (1996-98) and NORAD Stipend Programme is funding the health information system part of the SoPH’s Masters in Public Health (2001-2004).

European Union (EU)

In a top-meeting between the EU and Africa in Cairo April 2000, EU launched a dialogue with Africa to build a strategic partnership with the African continent to strengthen existing measures. A Plan of Action was adopted at the summit, highlighting four main global areas:

- Economic issues
- Deepening the link between trade and development at international level in order to ensure that trade liberalization contributes to poverty reduction is one of the objectives of the partnership;
- Respect for, and protection of, human rights, democratic principles and institutions and the rule of law together with good governance;
- Peace-building and conflict prevention, management and resolution in Africa;
- Development measures to combat poverty (in the areas of education, health and food security, for example).
EU now funds a project to develop and support the formation of health information systems within 13 rural health districts in South Africa. (University of Oslo and University of Western Cape 2001).

**United States Agency for International Development (USAID)**

USAID is an independent federal government agency that receives overall foreign policy guidance from the Secretary of State. Their work supports long-term and equitable economic growth and advances U.S. foreign policy objectives by supporting economic growth, agriculture and trade, global health, and, democracy, conflict prevention and humanitarian assistance. USAID work in close partnership with Private Voluntary Organizations (PVO’s), indigenous organizations, universities, American businesses, international agencies, other governments, and other U.S. government agencies and was funding the EQUITY project in South Africa.

**The Kagiso Trust (KT)**

KT is a leading NGO devoted to the development of disadvantaged communities in South Africa. The Trust finances and manages grassroots projects aimed at empowering especially women, young people and the disabled. It provides educational and developmental services to the poorest and most under-resourced sectors of South Africa society (usually in collaboration with community-based organizations or CBO’s), serving as partner; facilitator, advocate and enabler to individuals, the community, government, the private sector, the donor community and other agencies with similar objectives.

This web of interrelated organizations makes up a complex organizational background for the development of equitable and quality health care to the population in South Africa. A look at the members and donors in these organizations shows the complexity in the organizations and, although sited all over the world, how they are intertwined. I will not dive into the comprehensive field of the donor dependency in developing countries; only state the fact that it has an influence on priorities and strategies to reach them.

**5.6.4 The actors as ‘voices’**

Another way of conceptualize the groups of actors is to use the concept ‘voice’. After doing my fieldwork study it became clear to me that the facility managers’ interpretation of ‘reality’ was very different from what I had read in the research literature, and I was looking for a method to let the ‘voice’ of the facility managers be heard. The concept ‘voice’ is used as an analytic unit by many researchers in analyzing both talk and text, often referring to Bakhtin and his terms of ‘utterance’, ‘voice’ and ‘social language’. Bakhtin assumes that language determines and is determined by cultural formations, that it is a material production of a particular time and place, that it has the world-view of the speaker embedded in it (Lye 1998).

A general definition of voice is formulated by Sjöberg:

A voice is employed by a speaker in a dialogue to express the speaker’s intention, perspective and orientation. The voice is the user of different social languages. A speaker in a dialogue shifts voice depending on the intention of the speaker and what the speaker wants to mediate. The dialogue, the voices’ meeting place, can be regarded as a battlefield (Sjöberg 1996, p. 62).

In socio-cultural theory, the concept of ‘voice’ is used to denote a speaker’s perspective, frame of social reference, and consequently, use of language (Wertsch 1991 cited Timpka and Sjöberg 1994).
I will not go into the analysis unit of ‘utterance’ but maybe ‘social language’ will apply and the units of analysis will be instances of the concepts that I have identified. When for example articles in the South African Health Review speak about “Voice of Facility Managers” it is simply a text that let the facility managers present their opinion on their daily working situation. One aim with my thesis is to let the voices of the facility managers come to front.

In reviewing the discourse with ‘voice’ as a theoretic frame for categorizing the actors involved, I identified 5 categories of voices with different beliefs / attitudes or intentions: the voice of the SA politician, the voice of the general researcher, the voice of the HISP global researcher, the SA HISP researcher and the South African general researcher. In the next chapter, when I analyze my field work – the voice of the South African facility manager will be added.

As this is an interpretive research approach it is also necessary to bring in the voice of the researcher, who is not entering the field as an ‘objective’ observer. In interviews and observations I have chosen to interpret what I have seen through the lenses of the Cape Town facility manager, and my analysis has had this as a guide when looking for answers.

5.7 Analysis

The idea that reality as we know it is socially constructed has become an accepted truth. What is less commonly understood is how this reality gets constructed in the first place and what sustains it (Chia 2000, p.513).

(...), discourse analysis allows researchers to ask a variety of questions relating the constructive effects of language – exploring the way in which the socially produced ideas and objects that constitute our ‘reality’ are actually created and maintained (Phillips and Hardy 2002, p. 63).

In this analysis of the discourses I want to explore how the picture of the information culture at facility level is constructed and communicated through the literature. I will also show how the discourses describe the facility manager and how the introduction of a computerized health information system influenced the way in which the work practice and decision making by local health workers and managers is described and evaluated. Core concepts and themes and their meanings in the discourses are singled out and explored.

I ask why the situation in the PHC seems not to have changed much through all those years when it comes to use of information for decision making, at least if we are only searching in the literature for answers. The following are a few examples:

• 1981, Feldman and March describe 3 examples from 1970 – 77 about collection and use of information in organizations (Feldman and March 1981). Their article is often referred to in the discourses up to now, when discussing lack of information use and the reasons for this (Braa 1997; Braa and Hedberg 2000; University of Oslo 2001).

• 1987, Opit describes “Finagle’s Law”: “the information you have is not the information you need and the information you need is not the information you can get”. This ‘law’ is also repeatedly used in the discourse (Heywood and Campbell 1997; Braa, Heywood et al 1997; Sauerborn 2000; Williamson 2000, Haga 2001).

• 1994, In a Training Manual for district health workers it is stated that:
There is a growing awareness that in order to manage health services, appropriate information is essential. Too often, decisions are made without a sound, rational background of information which is based upon clear objectives and targets (Heywood, Campbell et al. 1994, p. iii).

- **2001**, in a Manual for health workers at facility level it is said that:

  Every health worker collects data routinely, but most never uses it to improve health services (Heywood and Rohde 2001).

- **2003**, in an research article:

  Knowledge and skill among health workers and managers on how to analyze and use information for management purposes are strikingly poor in most if not all developing countries (Braa 2003).

- **2005**: in an research article, as “examples of common problems encountered”

  Health workers and managers do not collect and/or do not use information since their roles in the Routine Health Management System (RHMIS) have not been specified in their job description (Gouws and Gregory 2005).

When one takes into consideration all the efforts that have been made during those years in the field of health information systems development and implementation, one might have expected a certain move towards the goals. This situation analysis from the researchers may partly be explained by the fact that the research literature always lags behind what is happening in the field, but it might also mirror the researchers’ attitudes / beliefs towards the local health workers, or it may be a deliberate construction of a ‘reality’ that defines the need for certain interventions/ actions from the organizations in question. If the last answer is the case, you may say that the organizations construct an organizational identity that fits their interest in the development of HIS.

Another issue of interest that is already encountered is the apparent inconsistency in the discourses in the description of the use of information in PHC and what is achieved by implementing a HIS, as this is also described as a success by some of the actors.

Successes included the creation of district-level data based information systems and structures, development of practical training courses that focussed on skills and understanding of information management and, less tangibly, a sense of ownership and a culture of information (Williamson, Stoops et al. 2001).

Despite the challenges which the project faces, the project is successful in the diffusion of lessons and software product (DHIS), starting from few district in South Africa to become South African standard, and later used in several other countries, through the processes of adaptation and appropriation (Sheikh 2005).

In the analysis I will combine key concepts and themes with the identified ‘voices’ and show how the different actors use and give meaning to the concepts in their context. Later in the analysis of the field material, I will let the voice of the facility manager tell his/her story.
5.7.1 The concepts

Concepts are the categories, relationships and theories through which we understand the world and relate to one another. (...) From the point of view of discourse analysis, concepts are all of the constructions that arise out of structured sets of text and that exist solely in the realm of ideas (Phillips and Hardy 1997, p 167).

In the discourse of HIS in developing countries, when presenting the goals for PHC and actions to be taken in the reconstruction of PHC and the health information system, there are a number of key concepts used. Important concepts identified are: decentralization, participation, empowerment and ownership. In the discourses the meaning of the concepts overlap, build on and depend on each other. These concepts are ‘good’ concepts, and agreed upon by all actors. I will show however, how these concepts are given different meanings from the different actors in the discourses, and later how they differ from the facility managers’ perceptions.

The term ‘local’ is also one of special interest, as empowering the local level is a central value of HIS development and “Local information for local action” is the HISP slogan. I will show how ‘local’ in the texts often denotes more than one level in the decision making hierarchy, and thus plays an important role in the discussion of the utilization of information for decision making. I will also explore how the discourses use and/or introduce the concept ‘information culture’, sometimes with a taken for granted meaning, sometimes with a very narrow definition, and with the assumption that no information culture exists at local level.

I will use the concepts and the relation between these concepts and the actor groups to organize the discussion and show how the actors use the concepts in the discourses to interpret ‘reality’.

The table 5.2 on the next pagers gives a few examples of how the institutional actors, presented as voices, describe or use the concepts in their writings.
<table>
<thead>
<tr>
<th>theme / concept</th>
<th>actors (voices)</th>
<th>type of text</th>
<th>description of theme</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>decentralization</strong></td>
<td>politician, South Africa (SA)</td>
<td>Government documents, National Plans, ‘White Papers’</td>
<td>Decentralize management of health services - emphasis on district health system, a means to equity and better health services. Decentralization of decision making powers</td>
</tr>
<tr>
<td></td>
<td>general researcher</td>
<td>journal articles, conference proceedings book sections (research literature)</td>
<td>Decentralization in practice means change in existing power relations. Decentralization involves the transfer of resources, decision making, planning and management functions from central government system to local government.</td>
</tr>
<tr>
<td></td>
<td>HISP researcher</td>
<td>research literature, manuals proposals, thesis, reports</td>
<td>Development of HIS and DHIS support decentralized ‘good’ governance at district and health facility level</td>
</tr>
<tr>
<td></td>
<td>HISP SA researcher</td>
<td>journal articles, proposals thesis, project reports</td>
<td>Decentralization of authority for decision making, training and strengthening of managerial support for district-based initiatives are key factors that contribute to the success of services.</td>
</tr>
<tr>
<td></td>
<td>SA researcher</td>
<td>SAHR, SA publications</td>
<td>A decentralized system essential for sustainable development and improvement of PHC</td>
</tr>
<tr>
<td><strong>participation</strong></td>
<td>politician SA</td>
<td>Government documents (White paper)</td>
<td>Community participation and the rights and duty of people to participate individually and collectively in planning and implementation of their health care.</td>
</tr>
<tr>
<td></td>
<td>general researcher</td>
<td>research literature</td>
<td>Community participation in development of DHS; user participation in design and development of HIS lead to empowerment</td>
</tr>
<tr>
<td></td>
<td>HISP researcher</td>
<td>research literature, manuals proposals, thesis, reports,</td>
<td>Aims at community, district and facility participation. Participation prerequisite for creating ownership. (Sustainable community participation turns out to be difficult to achieve.)</td>
</tr>
<tr>
<td></td>
<td>HISP SA researcher</td>
<td>journal articles, proposals thesis, project reports</td>
<td>Participation in decision making important to make delivery of health care responsive to local needs. Participation in IS implementation - focus on human resource development; need for training and support</td>
</tr>
<tr>
<td></td>
<td>SA researcher</td>
<td>SAHR, SA publications</td>
<td>It is possible to develop team spirit through a collective, inclusive, participatory process of institutional and organizational restructuring of the management of</td>
</tr>
<tr>
<td>theme / concept</td>
<td>actors (voices)</td>
<td>type of text</td>
<td>description of theme</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------</td>
<td>-------------</td>
<td>----------------------</td>
</tr>
<tr>
<td><strong>empowerment</strong></td>
<td>politician SA</td>
<td>Government documents (White paper)</td>
<td>The RDP sets the framework whereby the health of all SA must reflect the wealth of the country and lays the foundation for a process of democratizing the State and society that will foster the empowerment of all citizens.….</td>
</tr>
<tr>
<td></td>
<td>general researcher</td>
<td>Research literature</td>
<td>Empowerment is a multi-dimensional social process that helps people gain control over their own lives. A key goal of PHC programmes is local empowerment.</td>
</tr>
<tr>
<td></td>
<td>HISP researcher</td>
<td>research literature, manuals proposals, thesis, reports,</td>
<td>Design and use of ICT - a tool to empower local health workers and develop marginalized communities, areas and countries in a globalizing world.</td>
</tr>
<tr>
<td></td>
<td>HISP SA researcher</td>
<td>journal articles, proposals thesis, project reports</td>
<td>Training aims at empowering facility and district staff to use locally generated information to improve coverage and quality of PHC services (but it has proved to be unrealistic and over ambitious)</td>
</tr>
<tr>
<td></td>
<td>SA researcher</td>
<td>SAHR, SA publications</td>
<td>Having a management team without the authority to make and implement decisions is a recipe for no or little progress</td>
</tr>
<tr>
<td><strong>ownership</strong></td>
<td>politician SA</td>
<td>Government documents (National health plan)</td>
<td>Ownership and relevance of the information must be felt among all potential users of information through active participation in the system design.</td>
</tr>
<tr>
<td></td>
<td>general researcher</td>
<td>Research literature</td>
<td>From our experiences (…..), potential users of a health information system can achieve a sense of ownership when they actively participate from its inception in all phases of the design</td>
</tr>
<tr>
<td></td>
<td>HISP researcher</td>
<td>Research literature, proposals, thesis, reports, manuals</td>
<td>Prerequisites for success include local ownership, a bottom-up process based around the existing local structures and the active involvement from the community.</td>
</tr>
<tr>
<td></td>
<td>HISP SA researcher</td>
<td>journal articles, proposals thesis, project reports</td>
<td>Lack of technical and organizational infrastructure, coupled with poor management support structures, (…..), and lack of autonomy to implement change has promoted resistance to change and acceptance of ownership of the process.</td>
</tr>
<tr>
<td><strong>use of information</strong></td>
<td>politician SA</td>
<td>Government documents</td>
<td>Some progress made, but: lack of capacity at district level – most managers with</td>
</tr>
<tr>
<td>theme / concept</td>
<td>actors (voices)</td>
<td>type of text</td>
<td>description of theme</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------</td>
<td>--------------</td>
<td>----------------------</td>
</tr>
<tr>
<td></td>
<td>general researcher</td>
<td>Research literature</td>
<td>little managerial experience. Very few management posts filled at district level (2001).</td>
</tr>
<tr>
<td>information culture</td>
<td>HISP researcher</td>
<td>research literature, manuals proposals, thesis, reports</td>
<td>For information to influence management in an optimal way, it has to be used by decision-makers at each point of the management spiral.</td>
</tr>
<tr>
<td></td>
<td>HISP SA researcher</td>
<td>journal articles, proposals thesis, project reports</td>
<td>Health workers and managers do not collect and/or do not use information for decision making.</td>
</tr>
<tr>
<td></td>
<td>politician SA</td>
<td>Government documents</td>
<td>Health care staff and managers have not been trained on the utility and use of information. Therefore they do not possess the skills to employ health information to their advantage in improving the health services. Despite training, health workers at primary level do not use information as a decision making tool in the planning and delivery of health care.</td>
</tr>
<tr>
<td></td>
<td>general researcher</td>
<td>Research literature</td>
<td>National HIS aims to contribute to the promotion of an information culture in SA</td>
</tr>
<tr>
<td></td>
<td>HISP researcher</td>
<td>research literature, manuals proposals, thesis, reports</td>
<td>“It is when each of the above-mentioned elements of an integrated HIS become normative practice, and especially during step four that a ‘culture of information use’ begins to evolve.” (TALI tool)</td>
</tr>
<tr>
<td></td>
<td>HISP SA researcher</td>
<td>journal articles, proposals thesis, project reports</td>
<td>Experience suggests that even when there is a well designed information system, producing quality information; it will fail to improve management unless there is a culture of information use within the organization. The HISP process has contributed significantly to developing this culture of information.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>There is a need for / has been discussion on the importance of developing a culture of information use. DHIS aims at developing a culture of information use amongst health care workers through the development of knowledge and skills in data handling in order to create locally relevant information for use in the management of district level health programmes.</td>
</tr>
</tbody>
</table>

Table 5.2 Actors / Voices and themes / concepts
Decentralization

In the general discourse decentralization is a key principle and component in the acceptance of PHC approach, and involves the transfer of responsibilities, resources, decision making, planning and management functions from the central government system to lower levels of government (Collins and Green 1994). WHO and The World Bank (1993) view decentralization of PHC as potentially the most important force for improving efficiency and responding to local health conditions and demands. In the Alma Ata Declaration (WHO 1978) the focus is on PHC and community participation in planning and implementation of their health care. This implies a decentralization strategy where community involvement is essential.

The rationales and objectives of decentralization are often varied and ambitious. Frequently decentralization processes have been imposed upon a country’s health sector by political and social forces aimed at increasing democratization, political stability or community participation (World Bank 1987). Donors have often advocated decentralization, either as a mechanism to sustainability and to promote primary health care (WHO 1978) or for the potential efficiency gains that might be realized by incorporating local information in decision making, removing layers of bureaucracy or removing diseconomies of scale (World Bank 1997; Hutchinson and LaFond 2004).

In the SA policy document “A national health plan for South Africa” (ANC 1994, p 67) “Decentralisation of decision making power” is one of the ‘Priorities’ in a section about “Managing the National Health System (NHS)”. The aim is to “(...) establish the structure and line management functions of the NHS for decentralized decision making to the lowest effective level by end 1994”. It is not explicitly said which level is meant by “the lowest effective level” but in the “White Paper for the Transformation of the Health System in South Africa” (Department of Health 1997) the district level and the district health system is the stated goal. The object of the paper was to present a set of policy objectives and principles upon which the Unified National Health System of South Africa would be based. Another goal was to “develop a National Health Information System that will facilitate health planning and management, (...)”. Detailed steps in the transition of the health system from national to district based are given in the document.

We have set ourselves the task of developing a unified health system capable of delivering quality health care to all our citizens efficiently and in a caring environment. (.....) We intend to decentralize management of health services, with emphasis on the district health system (.....) (Department of Health 1997, p. 1).

The Minister of Health and Members of the Executive Council (MEC’s) for Health of the nine provinces have reiterated the vision of a district health system (DHS) being the cornerstone of a national health system. They have also reiterated the view that the final home of the DHS is with local government. Therefore, the developments that took place in the local government sector in the year 2000 have had and will continue to have, a profound impact on the establishment of the DHS (Barron and Sankar 2000, p. 221).

The general discourses either establish decentralization and the focus on district level management as a good thing, or use ‘local’ level without being explicit about which local level. Community level and community involvement, as mentioned in the Alma Ata Declaration is also included in the ‘decentralization’ perspective (Boerma 1991).
The available evidence indicates that at the community level local action and involvement are essential to health development (Baum 1995, p. 20).

The district health model is proposed as the most effective way of managing and delivering primary health care and of organizing health services (Amonoo-Lartson, Ebrahim et al. 1984).

Unless the power and responsibility for decision making resides at a point not too far from the periphery (the district is often cited as an appropriate level), (…) (Sandiford, Annett et al. 1992, p. 1079).

Most of the actors seem to agree on the value of decentralization, translated into practice as a re-organisation of health care services to PHC with district as the best manageable level.

In the general discourses the concept is mostly used in combination with ‘empowerment’. Many authors stress the importance of delegation of authority necessary for making decisions (Opit 1987; Sandiford, Annett et al. 1992; Williamson, Stoops et al. 2001; Sheikh 2005).

Furthermore, since decentralization in practice means change in existing power relations, political considerations are paramount (Sandiford, Annett et al. 1992, p. 1080).

Key factors that contribute to the success of services are decentralization of authority for decision making, training and strengthening of managerial support for district-based initiatives (WHO Bulletin 1997 cited in Williamson et al 2001).

The focus has however not so much been on the actual implementation of the “the shift of power and authority” in the discourses. It seems just to be taken for granted that decentralization at large and in terms of a district health system and/or a district health information system, will lead to empowerment. The issue here: change in power relations both as a political and organizational issue, is however important. The idea and ideal of decentralization and empowerment does not come true only by stating the aim or include it in political manifests. It implies major changes in existing organisational structures and culture and real devolution of decision making power, which is also recognized by authors both in the general discourses and the South African actors.

For the DHS to be properly established adequate financial arrangements will have to be in place to ensure that there are sufficient funds for the decentralization process. (…) The quantity of funds and the mechanisms by which they reach the various local government districts will need to be guaranteed somehow, as there are grave concerns in the local government sector regarding “unfunded mandates”. Put simply, “unfunded mandates” occur when functions are decentralized and responsibility to carry out these functions is given without provision of the necessary resources (Barron and Sankar 2000, p. 229)

Lippeveld and Sauerborn (2000), in their organizational model of the health services (see section 2.2.1) present decentralization levels, (called concentration levels), outline the management functions related to these levels and health services and management functions. These functions implicate a series of specific decisions to be made at each level. At primary level, first level care health units (facilities) have patients/clients and communities as its main functions/responsibilities and the user of information at this level is the care provider or the community health worker.

In terms of health information systems (HIS), district based routine HIS is seen as a tool to support decentralization. The HISP discourse sees the development and implementation of
their information system as a contribution to this decentralization and empowering process, and shows a great believe in the concept, product and process. In the early writings of the HISp discourse, the connection to DoH and the health system with focus on district is emphasized (Braa, Heywood et al. 1997). ‘Decentralization’ in these writings often include both district and facility level, although the development of DHIS is district based. ‘Local’ can refer to district, facility or both.

Development and use of health information systems for support of decentralized ‘good’ governance at district and health facility level (University of Oslo and University of Western Cape 2001).

HISp also emphasizes local level analysis and use of the data. This is reflected in the software itself, which requires the data entry at local level (health district level) (Sheikh 2005, p. 111).

Braa and Hedberg (2002, p.116) discuss how decentralized information systems may institutionalize new work practices but the question of decision making authority is not emphasized in the HISp discourse. Actually the facility has more the role of a ‘reporting unit’, with the aim to report routine anonymized data to higher planning authorities (Gouws and Gregory 2005, p. 322).

HISP SA actors in research papers often refer to general discourse when emphasizing the importance of decentralization. Decentralization of authority for decision making, training and strengthening of managerial support for district-based initiatives are mentioned as key factors. Slow pace of the creation of decentralization with delegated authority to act on available information is however mentioned as a threat to sustainability (Williamson, Stoops et al. 2001).

**Participation**

Another concept that together with ‘decentralization’ is seen as important to support empowerment is ‘participation’. Participation in political, organizational and societal development is a property of democracy and aims at supporting equity in power relations. As a single word, it has only a very general meaning – take part; but in what is one to take part, to what degree and how? The usual answers to those questions in participation-oriented theories of organization are that each person is to take part in those processes and decisions that affect his or her role in the organization (Katz and Kahn 1978; Sen 1999).

From an organization theory perspective, participation in the decision making when changing working processes, is seen as motivating workers and thus support quality and efficiency at the work place. Participation is recommended both in the political RDP in South Africa, in the organizational changing processes in the health care sector, and in the information systems development, without being explicit about who, how and in what to take part. The questions will be who participated and on what basis. Who “set the stage” for the participation and what was gained? Did for example the participation have an impact on the decision making power for the facility manager? From the Alma Ata Declaration community participation and the rights and duty of people to participate individually and collectively in the planning and implementation of their health care is emphasized (WHO 1978). In early writings, it is said that community participation should also be a part in the health information component of PHC programmes although how this community participation should be institutionalized is not clear.
Communities should participate actively in the health-information component of PHC programmes. However, the role of the community in health information and its use is often unclear (Boerma 1991, p.104).

The South African Government build on this in their RDP where the decentralization to local government goes parallel with the implementation of the district health system and emphasis is on community participation:

Community participation and intersectoral collaboration are cornerstones of the DHS.

(….) In the Municipal Systems Act No. 32 of 2000, two issues are given prominence. The issues of community participation and intersectoral collaboration are of great importance to the envisaged development and role of local government. They are also two pillars on which the Primary Health Care Approach is built and are therefore of importance to the DHS.

A full chapter of the Act is devoted to the establishment of mechanisms for community participation (italics in original). It advocates the building of a culture of community participation and imposes an obligation on local government to provide information and mechanisms for community participation as well as a contribution to capacity building to make this participation meaningful (Barron and Sankar 2000).

In the “Strategic Priorities for the National Health System, 2004-2009” the Department of Health recommend “(…) strengthening community participation in the governance of PHC services” under major challenges with respect to PHC (Department of Health 2004). Cooperation with private actors and NGO’s is also mention in SA policy documents as important stakeholders that should be included. In work practice this cooperation / participation exists, and also attempts to develop data collection tools that can serve the interest of both parties.

Translated into information systems design and development, user participation has been considered to be an important factor to success and a contribution to sustainability. User participation plays an important role in information systems design and stems from Scandinavia, also called the Scandinavian approach, focusing on bottom-up development.

The restructuring of routine health information systems should involve all key stakeholders in the design process. Experience suggests that systems that are designed by a team of “information experts” without adequate involvement of key stakeholders usually fails to reflect the needs and practical reality of service providers and managers, and does not encourage ownership of the system (RHINO 2001, p. 3).

In “Lessons learnt” from RHINO 2001 (p.6), ‘participation’ includes ‘stakeholders’ and only in the design phase: “Sustainability of routine health information reform depends on the participation of stakeholders in the design phase”. Byrne and Sahay (2003) discuss participation in IS development in the context of developing countries as different from participation in western organizations and focus on community involvement.

The participatory approach, grounded in the Scandinavian democracy, emphasises the concern of politics, distribution of power in the workplace, and how imbalances can be corrected through the participation of the workers (Byrne and Sahay 2003).
User participation in design is desirable for several reasons with mixed motivations:

(1) improving the knowledge upon which systems are built;
(2) enabling people to develop realistic expectations, and reducing resistance to change; and
(3) increasing workplace democracy by giving the members of an organisation the right to participate in decisions that are likely to affect their work

(Gregory 2003, p. 2).

The point (3) is important in the Scandinavian working environment, and participation in the development of HISP has been said to have the same aim of empowering people. In a later HISP Master thesis, Gregory (2003) is quoted, but only point (1) and (2) is emphasized and the “right to participate in decisions that are likely to affect their work” is left out.

User participation aims at involving future users of a system in decisions during the system’s development; the main reasons being to enable them develop realistic expectations and to improve the knowledge upon which a system is being built

(Sheikh 2005, p. 21).

What to focus on and who should participate varies in the HISP discourse. Community participation as recommended from WHO and others is emphasized in the early HISP writings. Community and district are mostly seen as important.

How can the participatory design tradition be modified and adapted to third world conditions? System development in third world context needs to be process oriented, bottom-up, based on a social system paradigm, and focus on the local scale and the community

(Braa 1997a, p. 40).

The community is generally seen as a key level for social development in the third world. Such development will rely upon community participation in decision making for social development at local level. (Midgley 1986 in Braa p 43) Thus, third world participatory design approaches need to emphasize the community rather than the workplace

(Braa 1997a).

HISPP aims at developing a district health information system based on participation with the community and the health services. (……) The information system aims at establishing routines for data collection, analysis and use of information in order to support management, health workers and the communities within the district. A district database, district information office and (…) (Braa 1997, p 12).

In the early HISP discourse the concept of community participation and how to give it a concrete translation is discussed. (Braa 1997a, p. 264). Experiences from the pilot projects tell however:

Community involvement has been very problematic: in both Khayelitsha and Mitchell’s Plain people from the community were active in the initial phases of the project but in both places the activity then started to decrease. The reasons for this include the differences in perceived goals and background between the community and the service provider. (…) The health service part of the information system is much better defined and understood than the community part and community has no examples to learn from (Braa 1997a, p. 263).

Later, the facility is however also included as an important partner that has to be involved, while another recommend to emphasize community and less the health facility.
The process towards the district information system needs to be driven from within and be based on sub-areas, organised units and facilities within the district. Therefore, the centralism in the district model relies upon further local empowerment within the district (Braa 1997a, p. 115).

More emphasis will be placed on communities and less on health facilities. Community participation in the planning, managing, monitoring and evaluation of health services is another crucial issue of the PHC approach (Braa 1997a, p. 114).

In HISP discourse, NGO’s like ‘Doctors without Borders’ that are working in the community and that would profit on participation, are not explicitly mentioned when discussing participation.

In what to participate is not that much discussed. The frame in developing DHIS has been that of anonymized routine data and to select data elements and indicators. In practice the selection of a manageable minimum (essential) dataset (EDS) has been a main task. Participation in this regard has been mentioned as a ‘solution’ to empowering health workers at lower levels:

As far as the problem of empowerment of health workers at the lower levels of the health sector in Tanzania is concerned, possible solutions would be:

• To involve the health workers at facility level, in decision-making when it comes to decide what data elements that have to be collected and why they are being collected (Burasa 2005).

Sheikh (2005) in his discussion refers to Puri et al. (2004) when giving an example of user participation in South Africa. The project referred to is however rooted in a community context and not in the facility based information management context as the HISP project. It seems that the power- and organizational structures in the community and the health services delivery organizations made it difficult to find a shared basis to build on, and maybe both community and health facilities seem not to feel included as intended in the development of DHIS.

Empowerment

A stated goal and reason for the preceding concepts, ‘participation’ and ‘decentralization’ is to empower people. ‘Empowerment’ is a shared concept by many disciplines and arenas. A general definition suggests that: “…empowerment is a multi-dimensional social process that helps people gain control over their own lives” (Page and Czuba 1999, p.3). This is a political as well as an organizational issue and a main concern in the health sector and the ISD domain. The WHO in Alma Ata (1978) points to the existing inequity in health status for people between developed and developing countries as well as within countries and states the right of all people to participate in planning and implementation of their health care, thus being empowered by “gaining control over their lives” with regard to health services.

The question of empowerment is closely linked to the question of decision making power for the facility managers and thus one of the most important issues to discuss. How do you empower people, generally speaking in the society and translated into health management and ISD in developing countries in practice?

The global accepted goals stated in the Alma Ata Declaration give direction for the RDP in South Africa, and the decentralization of the health system as described in the National Health Plan is seen as a means to meet the goal of empowerment. Participation and empowerment of

73
people in the municipalities is important and part of the RDP. The development of the local government sector goes parallel with the health district reorganization in South Africa. “Community participation and inter-sectoral collaboration are cornerstones of the DHS” (Barron and Sankar 2000). To have goals and plans is however not enough. To change existing organization structures takes time. By the end of my fieldwork (2003), the stated goal of decentralized decision making to the lowest effective level by 1994, and as part of this, the merging of provincial and local health services administration still had a way to go.

In the general discourse, empowerment is seen as “... a multi-dimensional social process that helps people gain control over their lives”. Development and implementation of ICT is also seen as an important tool for empowerment. When introducing the Scandinavian approach in developing countries, ISD refers to democracy and influence in working life. Empowerment and empowering the workers is a central value in the participatory design “school” of systems development.

The main idea is that the workers themselves should control and be responsible for performing work (Bjerknes and Bratteteig cited Braa 1997, p. 41).

This was the inspiration for the HISP initiative in South Africa, when they started out with the planning and development of a district based information system, although there was an awareness of the differences in legislation, power distribution and organization of working life between the Scandinavian countries and third world contexts. Empowering the local health workers is one of the stated goals for HISP and ‘empowerment’ has to be implemented in the SA context. “Empowering through learning”, “design for empowerment” and “practical participatory techniques and approaches” are important elements (Braa 1997a, p. 42). The vision is ambitious on behalf of the local level health workers:

The HISP vision is:
- to support the development of an excellent and sustainable health information system that enables all health care workers to use their own information to improve the coverage and quality of health services within our communities.

THE PRINCIPLES that we try to aspire to in our work:
- Encourage empowerment, democratization & transformation in its activities.

Empowerment by community involvement, as put forward in the beginning of HISP has however changed over time and turned more into the benefits of a facility based information system. The emphasis is on ICT and the information system as a tool for empowerment. Community involvement has shown difficult to achieve and ‘user participation’ is more aimed at district health planners and information officers. In what to participate is defined by the experts: the selection of data elements and indicators.

The linking of information use with decision making power, as described in the general literature is played down in the HISP literature. The big question of empowerment is not evaluated as such although this is a main concern in the 1st RHINO workshop (2001):

Information use is linked with decision making power. The greater the authority to take action, the more likely that data will be analyzed and used (RHINO 2001, p. 8).

An action-led system must begin its development with the same question at all levels: In which areas does one have decision-making authority, and what specific information is required to make these decisions more effectively? Information that does not respond to this question should never be collected (Campbell 2003, p. 9).
At lower levels, the delegation of real authority – as opposed to token responsibility – is the major determinant of the degree to which information is used for management (Campbell 2003, p.16).

Computers and the implementation of DHIS may rather have lead to dependency than empowerment as the need for external development and support is extensive. The dependency on donors and their role in purchasing equipment as described in section 5.6 also contributes to a different picture of the empowerment goal. This is also the impression from the field, when for example problems with the software arise. As one observation to guide a discussion at the RHINO 2001 Workshop, Sapiirie mention:

There is a failure not to realize that every task performed by a foreigner, no matter how expert she or he may be, is a task not performed by a national and, therefore, not likely to be learned, accepted, and sustained (Sapiirie 2001, p. 111).

Before moving to the crucial question of use of information for decision making, I will also look at one more concept; that is ‘ownership’.

Ownership – and how to create?

‘Ownership’ is defined as “the relation of an owner to the thing possessed; possession with the right to transfer possession to others”; and “possession: the act of having and controlling property”. The concept ‘ownership’ is central in the general discourses and it is seen as a necessary condition for building a successful ‘information culture’. The concept is not defined or elaborated further in the general or HISp discourses. In IS and HISp literature ownership is seen as an effect of participation in design of information systems.

Ownership and relevance of the information must be felt among all potential users of information through active participation in the system design (Lippeveld 2001, p. 24).

From our experiences (…..), potential users of a health information system can achieve a sense of ownership when they actively participate from its inception in all phases of the design. This includes identifying the data to collect, thus ensuring their relevance; choosing the indicators as well as determining the threshold values for actions and decisions; and defining what type of information should go to which users (Sauerborn 2000, p. 38).

III Strategies suggested and considered in fostering a culture of information:

1. Broad stakeholder involvement and consensus building (…..) in the restructuring of RHIS for creating ownership, responsibility, transparency and accountability (RHINO 2002; bold in original).

Our experience shows that a participatory process along with some (small) results along the way is crucial in creating such ownership (Braa 1997, p.12; italics in original).

There seems to be consensus among the actors that ‘ownership’ is an important and necessary condition and that participation and ownership are closely related. As ‘participation’ has been given somewhat different meaning from the different actors, it is not quite clear if they mean that participation in systems design alone is sufficient to create this feeling of ownership. The property of ownership – the “power to control” will need to include decision making power as important to achieve the feeling of ownership. This central issue is not discussed much in the HISp research literature, although a few of the HISp Master students include this aspect in
their discussions (Sheikh 2005; Mukama 2003). Campbell (2003, p.3) refers to DHIS in South Africa when saying that: “Control over the data collection design and choice of indicators is intended to encourage data use and a sense of ownership of the information system” and further: “The software used in South Africa was found to have contributed to change within the health system by providing flexible systems that encourage ownership and data use; (...)”. This tells however about intentions and opportunities and says nothing about experiences in the field.

Sandiford (2001) points however to a tendency for those concerned with the improvement of RHIS to be excessively focussed on technological “fixes”.

Whilst the advantages offered by developments in computing and network technology should continue to be exploited, the real challenge that lies ahead will be a different one. It will be skilfully secure the support of key stakeholders for a radical change in the ‘ownership’ of health information, independently of whether is derived from routine, survey or rapid assessment sources, to one which views all such information as being at the service of citizens and users of health services rather than a jealously guarded possession of specific institution or political interests (Sandiford 2001, p. 33).

Research from HISPSA actors refers to the intentions and opportunities of the DHIS to create a sense of ownership. When it comes to field results, they tell about lack of ownership and commitment after training in courses. Even if there was an increased awareness of the use of information for improving the coverage and quality of primary health care services, the reasons for lack of feeling of ownership were manifold and were related to: misrepresentation in the course, course content was difficult, exercises were not related to local problems and lack of computers and time for computer training was identified as a major weakness of training (Williamson 2000).

The question to be answered is whether the local health workers experience this “power to exclusively control and use for one's own purposes” by the information provided by the DHIS and also the sense of ownership, referred to in the RHINO 2003. As health workers and facility managers are key persons in the data collection, this is an important question to be answered.

5.7.2 Use of information for decision making

The concepts ‘use of information’ and ‘information culture’ are often used as synonyms in the HIS discourses. After the first RHINO Workshop (2001) a “Discussion Forum Summary” gives this definition of a ‘culture of information’:

- Use of information provided by RHIS to make decisions, coming from valuing information and information quality as a critical component for decision making
- Demand for additional information to fill in gaps
- Regular use of information in strategic and operational management with an overall goal to improve health.

‘Information culture’ is however a concept that has a wider meaning where context plays an important part. ‘Use of information’ will often be strictly about use, i.e. the use or non-use of available information, while ‘information culture’ in the general research literature will be interpreted in the national, organizational and local cultural context. Some times it seems however also here to cover only ‘use’ in a more limited meaning of the concept and not
including the contextual issues like forms of cultural interaction and power relations in the hierarchy.

Translated into the context of the facility management, ‘information culture’ would also include local and tacit knowledge in data collection and use in the health work practice that is not visible in the formal information collection and process. Schaefer (1973) raises the question “By whose definitions of reality and rationality?” For the health facilities this is an important issue and includes the question of who decides what kind of information is regarded important and valuable and should be registered and reported. The RHINO Network for example has ‘routine health information’ as its main focus, and it may become natural to delimit ‘information culture’ to the use of routine health information, but at the same time it leaves out a part of the local health workers work practice.

In an early training manual (Heywood, Campbell et al. 1994, p. 3) it is described what a Health and Management Information System (HMIS) is and the kind of data it is based on. With the basis on routine data collection and formal sources of information, they do however also include inspiration and intuition (!) in addition to this.

In the general discourses and the HISP discourse ‘use of information for decision making’ is the success criterion of an information system and, although not an end in itself, it is seen to contribute to empowerment and improved health status (Feldman and March 1981; Opit 1987; Cooke and Henderson 2000; Sauerborn and Lippeveld 2000). The literature abounds with statements confirming this.

A HMIS is not a means in itself, but a tool to help improve health management and achieving better health by using available information (Heywood, Campbell et al. 1994, p. 4).

[…] information is not an end in itself, but a means to better decisions in policy design, health planning, management, monitoring and evaluation of programmes and services including patient care, thus improving overall health service performance and outcome (Sauerborn 2000, p 33).

It is asked if HISP is a successful story, and one way to evaluate this is said to look at the outcomes of the process: the availability of appropriate information for management and the actual use of this information (Braa and Hedberg 2002, p. 126). In HISP SA discourse this research is on one hand described as a success (although with the need for “DHIS champions” at each level of the system). Sometimes this is expressed as a general statement:

Successes included the creation of district-level data based information systems and structures, development of practical training courses that focussed on skills and understanding of information management and, less tangibly, a sense of ownership and a culture of information (Braa, Heywood et al 1998 cited Williamson, Stoops et al 2001),

But there are also given examples from the field. HISP SA actor tells, in a reflection on the field visits at the RHINO 2003 Workshop and the DHIS in SA:

There was a widespread recognition that, in the majority of facilities visited, information use in South Africa was at an advanced stage. …..and “information use is becoming a feature of the health system in South Africa” and “information use is high on the agenda: there is a high degree of ownership of the information (Shaw 2003, p. 48).
This conforms to the ‘success’ story of HISP but seem to be contradictory to the repeated statements that information is not used for decision making both in general and HISP discourse.

Our conclusion on information usage is that information is used very little or not at all at facility level in PAWC. Others have pointed out before us that the use of data is scarce, and that information seldom is analysed and used for decision making. Our findings on this issues correspond with the findings in for instance (Braa, Heywood et al. 1997; Braa and Nermunkh 1998; Jakobsen and Johansen 2004)

This may partly be explained by the fact that use of information differed in different parts of the country and Eastern Cape visitors reported examples of information use, while: “(...) in the Western Cape unlike the rest of the country, the health system is still not integrated” (Shaw 2003). Another reason may be that these results come from different categories of text, addressing different audiences.

Even with a more limited meaning of ‘use of information for decision making’ the expression contains 3 concepts that need to be elaborated more; i.e. ‘use’, ‘information’ and ‘decision making’. It is important to be explicit about what kind of use, what kind of information and what kind of decisions and this is not always done in the discourses. When for example it is stated that: “None of the interviewees reported using information for decision making at local level” (Braa 1997, p. 219), these questions are left unanswered.

Use

What exactly is the meaning of ‘use’ of information in the health facility and how is this use of information in health facility described in the discourses? On the one hand, when ‘use’ is discussed in the general discourses, wrong use, non-use, overuse, misuse and premature use is described in a number of examples (Feldman and March 1981; Opit 1987; Sauerborn 2000), but often at a theoretical level and it is not always clear what it would mean translated into the health facility context. Facility belongs in the ‘local’ category and there is no distinction between the district and the facility level (see section 5.7.3). This indistinctness in describing ‘use’ at facility level was pointed to in the ‘Themes’ in the 2nd RHINO Workshop in summarizing a group discussion. They find that “Assessment of information use is also difficult since the term ‘use’ is not easily defined” (Wilson and Gouw 2003, p 61).

Although “lack of information usage” is stated repeatedly in the research literature, it is also pointed to a lack of empirical studies to confirm this (Sauerborn 2000; Walsham 2001a).

In fact we could not identify a single empirical study of the actual use of information within a health system (Sauerborn 2000, p. 38)

Sapiere (2000, p. 73) addresses HIS assessment and recommend that health care workers and managers should undertake such assessments periodically to evaluate success in improving generation and use of data. He refers to the different components of HIS and one of the categories to focus on is ‘use of information’, where use is described to be “(...) decisions and actions taken for patient/client, community, health unit, programme, and executive management”.

Feldman & March (1981) is often quoted for their “6 observations about the gathering and use of information in organisations”. They describe 3 cases and discuss how information is collected, for what purposes, and whether it is used or not used in decision making, or maybe
used as evidence to support decisions already made. They focus on the symbolic value of
information in organizations and critique the assumption underlying the rational approach of
how decision making is improved by the use of more information (Mosse 2005). In the HISP
discourse this paper is however often used as an example of non-use or wrong use of
information (Braa 1997a; University of Oslo and University of Western Cape 2001).

When ‘use’ is exemplified in the HISP discourse, it is mostly related to the DHIS software:

As a way to monitor the status of the DHIS, the HISP team developed a tool to
evaluate the degree to which a health information system is being used effectively.
This tool, called Tool for the Assessment of Levels of Information (TALI), uses a
checklist approach with objectively verifiable observations to help managers rank
the effectiveness of information use at different levels of the health system on a
three-point scale (Wilson and Gouw 2003, p. 34).

One reason for this may be that lot of research fieldwork is carried out within the HISP
context and that this is the lens through which the researchers are observing and interpreting
what they see in the field. There are however also descriptions of local information use in the
HISP discourse: Sheikh (2005, p. 96) give a different story of engagement and local use

The staff both at the HCF’s and at DHMT’s also showed a considerable effort to
strengthen information use, based on their human and material capacity.
Traditionally, HIS in most developing countries do not support local decision
making, as they emphasize the data needs of the top managers while ignoring that
required by the health staff at the health facilities and the district. However, there is
some information which is of direct use for the service providers at the HCFs. For
example, growth assessment can be monitored through babies’ vaccination cards, or
the patients’ history can be traced through patients’ prescription cards or books. How
the information will be used depends on the users; but the non-use cannot be simply
reflected to poor information culture.

Information
Hurtubise (1984, cited Sauerborn and Lippeveld 2000) describes information systems as
systems that provide specific information support to the decision making process at each level
of an organization. (The question of levels will be elaborated in section 5.7.3). Methods for
collecting data can be classified as routine or non-routine methods. Routine data are based on
for example patients in the health facility (Lippeveld 2000), which means that routine data can
be patient information used in patient management and/or this data can be anonymized for
other managerial tasks. The RHINO Network has defined the kind of information they talk
about as ‘routine information’ and the goal of the Network is: “(...) to promote high quality
and practical approaches to the collection and use of routine health information in developing
countries”. HELINA (Health Informatics in Africa) has focus on health informatics, which
adds the use of computer onto the ‘routine’ aspect of information.

In the HISP discourse, although development and implementation of the DHIS software is a
main concern, it is also emphasized that information systems still may be paper-based, simply
because the infrastructure and computer competence are not in place. The information in
question is however based on the same system which means anonymized patient information,
collected in the health facilities and used in combination with data from other sources, like for
example census data.
Looking at the tasks and responsibilities for the health facility manager it is evident that patient treatment and management is the overall responsibility, and patient information and personal knowledge about the community and the families living in their catchment area is important. This fact is often emphasized in the discourses.

(…) quality care will be defined differently depending on the concentration level. Quality care at the first level is comprehensive, integrated, and continuous; it focuses on patients and clients in their immediate socio-cultural environment (…).
(Lippeveld and Sauerborn 2000, p. 19).

Ideally, health services staff should only report data which are useful for patient/client management or for health unit management. All other information required at this level could be generated by data sources other than health unit based reporting (Lippeveld and Sauerborn 2000, p. 22).

We are coming to the conclusion that front-line health workers take daily clinical decisions on the basis of clinical information present in individual or family charts (Abrantes 1987, p. 420).

The choice of data for collection is well intended, but it often does not support the tasks that the service providers must perform, first for the care of individual patients, or for efficient management of the facility (Sapirie 2001, p. 106).

The specific information needs at the different managerial levels are often described in the theory sections in HIS/P research. At the same time there is the massive critique of lack of information use for decision making at local level. The relation between the kind of information and the service level as a possible explanation to the lack of information use is not elaborated.

The Department of Health cooperate with HIS/P, and in their policy papers they underline the importance of a district information system for planning, but also state the need for patient information. In “Strategic Priorities for the National Health System 2004-2009” the need for patient information is included: “(..) a uniform patient information system which will enable the health system to track patients regardless of where they present, has yet to be developed” (Department of Health 2004).

**Decision making**

The health services and decision making hierarchy is described in more detail in chapter 6. The importance of decision making power is also underlined in the discourses as discussed in section 5.7.1. The fact that the choice of data collection not always supports decision making in patient care management is also acknowledged in HIS/P discourse (Sapirie 2001, p. 106).

As DHIS for example, only provides anonymized information, this information system will not cover the needs for decision making in the health facility. It is however recognized in the HIS/P discourse that health workers in their daily activities collect data for patient management and that there is a need for other data sources to obtain more data at community level (Mukama 2003). When the DHIS is described, the emphasis is however on standardization, data elements, indicators and district level, and it is the use of information at district and provincial level that is described:

In 1998 two provinces implemented a minimum dataset of 27 and 47 data elements respectively and used the DHIS to capture the data at district level to consolidate it at province level. Other provinces and the national level got convinced about this strategy when they were demonstrated the complete dataset for a whole year from
the two provinces where the data elements cut across the barriers of different health programs. Indicators could now be calculated and compared across geographical areas (Braa 2003, p. 16).

Campbell (2003) discusses RHIS, decision making and information culture. He claims that:

The HIS measures its ultimate success by informed decisions that lead to action and positive change in the health system or health status.

He also claims that, despite progress in data collection, analysis and reporting, this is not yet achieving the culture of information use. Crucial in developing this culture of information use he sees “(..) the degree of delegation of real authority – as opposed to token responsibility” to be the major determinant of the degree to which information is used for management (Campbell 2003, p. 16).

When describing and assessing use of information at local level, many authors are explicit in describing what kinds of decisions the facility manager is able to make – theoretically. It is also emphasized the importance of relevant information for decision making at each level, but somehow it is not discussed how this correspond with the information provided by the formal information systems and the situation for the facility manager. You may also find contradictory utterances about the stated importance of information for decision making:

Without reliable, relevant health information, health care managers and providers cannot make decisions to allocate resources effectively, improve quality of health services, (…) (Braa 2003).

(…) there is almost no empirical evidence to support the assumption that good information leads to improved decisions for health planning and policy (Sauerborn 2000)

5.7.3 ‘Local’ use of information

The different levels in the health services and decision making hierarchy are mentioned by many of the actors from different perspectives. When it is said that information is used or not used for decision making at ‘local’ level it is not clear what ‘local’ denotes. This relation between ‘local’ and ‘use of information’ I find one of the most important issues in the discussion of use or non-use of information.

In line with the ‘participation’ concept, the SA politicians (and WHO) seem to have the community in mind when talking about local level and health services. Major changes from central to periphery in RDP also use district as local level as opposed to national / province level. In the introduction to the WHO publication on design and implementation of HIS it is emphasized:

Information is crucial at all management levels of the health services, from the periphery to the centre. It is crucial for patient/client management, for health unit management, as well as for health system planning and management (Lippeveld, Sauerborn et al. 2000).

Here patient and health unit management are mentioned explicitly. There are also other authors in the general discourses and the HIS discourse that draw attention to the specific needs for the health workers at first level health care and the need for use of information at the
same level at which it is collected (Abrantes 1987; Opit 1987; Boerma 1991; Lippeveld and Sauerborn 2000; Walsham 2001a).

Regardless of the precise definition (of PHC), a key goal of primary health care programmes is local empowerment. In terms of information and related computer-based information system, this translates into the need to create, analyse and use data at the same level at which it is collected (Walsham 2001a, p 195).

For information to influence management in an optimal way, it has to be used by decision-makers at each point of the management spiral (Sauerborn and Lippeveld 2000, p 1).

Traditional health information systems deal with population data and impact of services collect data in order to make retrospective analysis – at a higher level. In primary health care the challenge is to analyse and use the information immediately at the same level where it is collected, thus local information to support local action (Opit 1987, in Braa 1997 p 25 – italics in original).

However, in the research literature the concept ‘local’ is sometimes used to denote the district level, sometimes the facility level and sometimes both. This is the case both in the general discourse and the HISP discourse. The earliest text included in the HISP discourse is a training manual for district health workers from 1994. The authors underline the importance of local use of information: “Use locally analyzed information to inform health worker” (Heywood, Campbell et al 1994, p.2). He also brings in the need to sort between levels when you look at the need for information in decision making, but later in the text, the manual is said to be “intended to help member of the District or regional health management teams”.

It is imperative to decide which decisions are taken by whom at which level, and how often. Having a good system enables local level health workers to know what the health service is trying to achieve by setting local objectives and targets, and enables them to see how well they are progressing towards achieving them (Heywood, Campbell et al 1994).

Who is this manual for? This manual is for health workers (…). It is intended to help member of the District or regional health management teams (…). The manuals’ intended readers will primarily be mid-level managers (…) (Heywood, Campbell et al. 1994).

In the early phases of the HISPP project, ‘district’ is the unit around which the system revolves, and although community participation was intended, it is also admitted that for different reasons, this was difficult to achieve (Braa 1997a). When it comes to the health services and the health information system, district is most often mentioned as the ‘local’ unit. Decentralizing management of health services with emphasis on the district health system is the means to equity and better health services. In describing and evaluating “6 steps to develop a district health information system” in the HISPP pilot project, it is said:

The initiative to establish a pilot should come from the district itself. Choose those who have something themselves and who are the most interested. Local commitment and enthusiasm are pre-requisites. The process must be based on local management and community structures and address local needs (Braa 1997a, p. 261).

The emphasis on District in both terms (DHIS) was chosen to encourage the decentralized design and control of information management and use. Nevertheless, the data collected are also available and used at provincial and national levels. The system includes the procedures and formats used in all facilities to collect and report
the data as well as the roles and authority enabling health workers to use their data to improve health services performance (Wilson and Gouw 2003, p. 27).

In a report from the WITFOR Commission on Health for WITFOR Lithuania 2003 the term ‘local’ is used in the following ways:

Strengthening Primary Health Care delivery (……) within a district based, decentralized health system. Focus on local use of information. Use of data at the level of collection is the best strategy to ensure data quality in the entire system (Braa 2003).

And later in the same document in ‘Strategies’:

**Level 1: National Health Information Systems: (……). While all levels of the health system are addressed, the focus is on local use (bold in original).**

The approaches to HIS development presented in this document are addressing these problems by focusing on the ‘district’ level (bold added) within a national framework (Braa 2003, p 3).

The district is an appropriate level wherein to centralise the flow of information. It is global enough to allow for integration and not only further fragmentation. At the same time it is local enough to manage and co-ordinate the local level health services (Braa 1997, p 45).

As the ‘level of data collection’ mainly is the facility level, it becomes unclear whether ‘local’ denotes the facility or the district level. This blurs the discussion about the information use and information culture in PHC. As the responsibilities and decisions to make will be different at the two levels, it is important to be specific about the levels when you perform a situation analysis or an evaluation.

In the WHO publication “Design and Implementation of Health Information Systems” (Lippeveld, Sauerborn et al. 2000) many of the authors emphasize the importance of information at all managerial levels. Lippeveld and Sauerborn (2000) elaborate this in “A framework for designing health information systems” and aims at answering the question: “How can the common elements be combined in such a way that information is or becomes a real ‘resource’ to solve health problems at all levels of the health services system?” The organizational model of the health services with the service levels is described in more detail in Section 2.2.1, where also the management functions at each level are discussed. The facility level has as its main responsibility to provide health care to people.

The general management objective of a health unit is to provide health care to a defined population in the catchment area surrounding the health unit with a given amount of resources (Lippeveld and Sauerborn 2000).

(……), the primary job of most data collectors revolves around their tasks as health workers or managers of health services (LaFond and Fields 2003, p. 21).

The 2nd RHINO workshop in South Africa (2003) has the title: “Enhancing the Quality and Use of Routine Health Information at District Level” (bold added). In presenting The Prism Framework in the conference proceedings, the authors state that “Health information is particularly valuable at district level, where there are many demands on scarce resources” (LaFond and Fields 2003, p. 20).
In HIS discourse we can find statements like: “Effective supervision, feedback and motivation must be given to the local level health workers who are the main data collectors”, and later in the text ‘local’ is denoted to be the health district level (Sheikh 2005, p. 110).

5.7.4 Information Culture

Lippeveld (2001) identify the absence of ‘information culture’ as one of the main reasons that managers do not make decision based on information, particularly at lower levels.

Throughout this book, the absence of an “information culture”, particularly at lower levels of the health services system, has been identified as one of the main reasons that managers do not make decisions based on information (Lippeveld 2000, p. 233).

Definitions of information culture in the general discourse are mostly very general formulated and therefore need to be translated into the local organizational and cultural context. In the general HIS discourse experience and attitudes of managers and planners are included, although still related to information in health systems performance:

Information culture relates to the policy and management environment and the incentives to use information for decision making, as well as to the experience and attitudes of managers and planners with respect to the role of information in improving health system performance (RHINO 2001, p.7)

The concept ‘information culture’ (IC) is not a universal concept, but even if it is grounded in a certain domain (i.e. information systems) you need to look beyond this domain. To give a rich picture of the information culture in an organization you need to consider the context in which the organization is embedded and to see the IC as a part of the overall organization culture. Walsham (2001a) emphasizes the need for a deeper local cultural understanding when working with ICT in a particular context:

However, working with IT in a particular context requires a deeper local cultural understanding, and a process-oriented view as to how culture is implicated in IT adoption and use processes. (…..) Understanding through immersion requires a starting point of respect for local cultural values, and considerable effort to understand these (Walsham 2001a, p. 201).

‘Information’ and ‘use of information’ in the health work practice is manifold and a local information culture may exist without being visible in the formal data collection routines. In understanding the organization culture you need to include concepts like: values, rules, norms, basic assumptions or behavioural patterns.

The National Department of Health in “White Paper for Transformation of the Health System in South Africa” (1997) describe lack of reliable health information as one of the major obstacles to the effective planning of health services in South Africa. Based on this a new HIS is given priority and the HIS aims to “contribute to the promotion of an information culture in South Africa”. The concept ‘information culture’ is not further discussed or elaborated and the description of existing situation and developing process will to a large extent correspond with the HISP development. In the HIS and HISp discourse ‘information culture’ is mostly described and limited to use of information from routine information systems:

The DHIS aims at developing a culture of information use amongst the health care workers through the development of knowledge and skills in data handling in order to create locally relevant information for use in the management of district level health programmes (Williamson, Stoops et al. 2001).
In “Lessons of Experience (…)” after the 1st Rhino Workshop it is said that, “The basic argument for establishing an information culture is to maximize the benefits of strengthening the collection and analysis of routine data” (1st RHINO Workshop 2001, p. 7). A discussion forum after this Workshop addressed the topic of information culture. In a summary the factors that influence a culture of information are listed in 2 categories:

(A) Non-informational factors influencing the use of information for decision making, and
(B) Information-related factors.

(A) The non-informational factors are:
- recourses
- decision making empowerment
- level of decision making authority
- commitment to evidence-based decision making
- leadership-related
- organizational
- management
- motivational
- cultural context

(B) The information-related factors are:
- skills and competence in use of data for decision making
- data interpretation and presentation skills
- feedback, including availability of comparative information
- use of management information to improve programs or systems
- development and use of relevant, meaningful indicators
- quality of information, although the quality need only match that necessary for adequate decision making
- quality control (external and internal)
- use of standardized forms and formats
- flexibility to incorporate changing (or local) information needs
- “discipline” in information required from health workers (burden for reporting from health workers)
- clearly defined pathways from process to outcomes with respect to the intervention.

From an ISD and HISP point of view, the information-related factors are maybe the easiest to assess and therefore the most discussed, but it might be that the non-informational factors are the ones that explain why, if so, there is a lack of information culture.
In discussing information culture in HIS in developing countries, HISP discourse points to the situation in many developing countries, where the HIS does not support local decision making, but emphasize the needs of top managers while ignoring the needs of health staff at the facilities (Sheikh 2005). Walsham (2001, p. 201) asks: “If culture is important, how can it be understood and analysed? And he continues:

Understanding through immersion requires a starting point of respect for local cultural values, and considerable effort to understand these (Walsham 2001).

Walsham (2001) comments on the HISP project in SA:

A main focus is on developing an ‘information culture’, building capacity and empowering health workers and community (…). All of this sounds worthwhile in principle, but it is not an easy task to implement these goals. For example, ‘developing an information culture’ implies a complete change in attitude and approach on the part of local health workers of all South Africa, who had traditionally operated under a centralized apartheid regime (Walsham 2001a, p 195).

Walsham discusses the ‘culture’ concept in detail and points to the relative absence of detail with respect to local cultural perceptions on issues in the HISP work.

(…..), no explanation is given from the viewpoint of the people affected. The reader would have benefited from hearing more about what the local participants thought about the various projects, and the broader socio-political context in which they were situated (Walsham 2001a, p 199).

In a HISP SA discourse writing about evaluation of RHMIS in developing countries, problems frequently encountered are listed. One of the problems in organizations may stem from ”a hierarchical organisational culture in which a manager is always regarded as the superior to the information officer”(Gouws 2005, p. 325). Power relations between groups and levels are important and part of national, occupational and organizational culture and need to be explored when assessing information culture at facility level.

In the ’Keynote’ to the 2nd RHINO Workshop (Campbell 2003, p. 15), when talking about information culture, the ‘TALI’ tool developed by HISP in South Africa (see Section 6.8 and appendix 17) is used as an example of an appropriate assessment tool. ‘TALI’ is a self-evaluation tool and the levels of information use should indicate whether an information culture exists. When discussing information culture and the development of it, it is described as a process of HIS with 5 elements or steps that culminates in an information culture. In the “TALI HIS assessment Framework”, three levels are described and level 0 is described as “Chaos as usual, no significant changes in routine HIS”. This statement is charged with certain values and attitudes toward lower level health workers that seem unreasonable when considering the lack of decision making power, which is also acknowledged:

At lower levels the degree of delegation of real authority – as opposed to token responsibility – is the major determinant of the degree to which information is used for management (RHINO 2003).

The district level is to some extent described as moving forwards, but still not at the level of ‘culture of information use’:

(…) after two to five years of intensive work of HIS design, implementation and follow-up at district level, most districts have reasonable accurate data (…), and a good proportion are actively analyzing data and making routine reports for feedback
to management and facilities. However, this is not yet achieving the culture of information use (Campbell 2003, p. 16).

Level 3 depicts the start of a ‘culture of information’ and the potential for further information use. The requirements for creating and fostering an information culture are many. Actions to be taken are:

(…) adult-learning techniques to practice using data for the different types of decisions that are within the scope of each staff cadre’s authority (Campbell 2003, p.15).

Although this emphasis on the importance of information and need for developing an IC, Campbell (2003) in the same article claims that:

However, despite the substantial improvements in the timeliness, quality and presentation of information available to improve managerial support at the district level, the same problem continues to exist today as in 2001, and indeed throughout the history of HIS: Availability of information (in any form, of any quality or in any frequency), has not guaranteed its utilization for improved health-related decisions (bold in original).

In the development processes of the HISP project, ‘information culture’ is a central topic. ‘Local information for local action’ is the slogan and ‘Using information to make decisions’ the ultimate goal of the information system.

The national rollout of the DHIS aims at developing a culture of information use amongst health care workers through the development of knowledge and skills in data handling in order to create locally relevant information for use in the management of district level programmes (Williamson and Stoops 2001, p. 103)

HISP writers talk consequently of ‘building’ and ‘creating’ an information culture / a culture of information use and there is no recognition of an existing information culture to build on and develop further. This is not always stated explicitly, but a statement like the following implies that no such culture exists to build on:

There has been discussion on the importance of developing a culture of information use. If front-line workers are to use health information systems as a management tool for programme monitoring at local level, health managers and policy makers must develop a culture of information whereby information is actively used for resource allocation, planning and policy development at higher level (Williamson, Stoops et al. 2001).

This sets the scene for creating district based information system and structures. In order to utilize these processes, there needs to be ongoing staff development, skills training and understanding of information management. This leads to the creation of an information culture where information is sought, discussed and used to improve the health of the community (Stoops 2000, p. 11).

In “Process Elements of a Health Information System” (Campbell, RHINO 2003, p.10) it is claimed that: “Decisions informed by HIS will then provide the rationale with which to counter political arguments and complement the intuitive and experiential base for more “actionable recommendations”. This theoretical assumption was not confirmed in work practice for facility managers, who claimed that their numbers have no impact on decisions.
5.8 How discourse create the identity of the facility manager

Discourse analysis is a methodology within qualitative research concerned about the constructive effects of language – how talk and text – in a certain context constructs a social reality, i.e. language is more than a reflection of reality; it is constructive of social reality (Potter 1996; Phillips and Hardy 2002).

A central feature of any description is its role in categorization; a description formulates some object or event as something; it constitutes it as a thing, and a thing with specific qualities. The description presents something as good or bad, big or small, more violent or less violent, although often with more subtle options (Potter 1996, p 111).

Both the HISP discourse and the general discourses have included descriptions of the local health workers / facility managers. What most of the texts have in common is that they describe these people in a very negative way. That is, the health workers medical work and their importance in rendering health services to the people is appreciated and not questioned. It is in the domain of data collection, information use and management that they are left with no respect.

Government hospitals and clinics provide the bulk of modern medical care, but they suffer from highly centralized decision making, wide fluctuation in annual budget allocations, and poor motivation of both facility managers and health care workers (WorldBank 1997).

Data quality is low for several reasons. (……)They are poorly motivated to produce quality data, because most data collected are irrelevant to their own information needs. They rarely receive feedback on the data reported to higher levels, so they have little incentive to ensure quality of the collected data and comply with reporting requirements (Lippeveld 2001).

Knowledge and skill among health workers and managers on how to analyze and use information for management purposes are strikingly poor in most if not all developing countries (Braa 2003, p. 8).

Facility may be categorized as a ‘reporting unit’ that submit data on time in the correct fashion, and not as a self-contained unit with tasks and responsibilities, that in itself needs information for management (Gouws and Gregory 2005, p. 322).

In evaluations and “Lessons learned” around HISP on the development of DHIS, Department of Health SA quote authors from general discourse and HISP discourse on a more general basis and do not specifically mention the health facility managers. They also mostly emphasize the district level in describing their achievements and efforts.

In describing the PHC facility workers and managers as poorly motivated, not using easily available information to make decisions (……and more descriptions), the actors through language use construct a picture of ‘reality’ at local level in PHC that they may act on. These actors at the same time establish the need for their ‘help’, tools and competence in improving this situation, and thus construct their own organizational identity as ‘helpers’ in contrast to the aim of participation and empowerment.

Once the principles were agreed upon and the process of implementing the system started, the poor level of skill and knowledge within the area of health information systems became the major obstacle. Since 1999-2000 the Health Information System Program (HISP) has been commissioned to facilitate the implementation process and
to develop the DHIS software further. 5-8 HISP facilitators have been full time occupied with training and on site support over the period and the School of Public Health, the University of Western Cape (the HISP-base) has trained more than 2000 health workers and managers in HIS related issues during their Summer and Winter schools. This large input emphasizes the huge amount of resources that are actually needed for HIS implementation and human capacity development in a large developing country (Braa 2003, p. 16).

The South African HST makes an exception among the actors in their evaluations, where the health workers and managers at facility level are described differently:

The base is the love of the work I do (…) money is a problem, it is a very slow road travelling upwards with the money, but money is not everything, we have a service to deliver, we have people looking up towards us for help, hope and for survival and you have to be committed, you have to have responsibilities to be able to push forward in this profession… (Leon, Bhunu et al. 2001, p. 207).

5.9 Summary

The main impression and “lesson learned” from reading and analysing the discourses, before and after my fieldwork, was that ‘reality’ not only looks different in discourse and practice. I was struck by the discursive power to construct ‘reality’ and images of people in a certain research domain by using talk and text and thus influence what is focused on and seen in the research. The majority of written material come from general research and will thereby form the overall picture of the facility managers and health facility workers. They themselves have very limited space in the international HIS discourses.
6 Case study – context and voices of the facility managers

The information in this chapter stems from transcripts from interviews, field notes from observations, documents from the local health and health information organizations, and minutes from meetings I attended to in Cape Town. My intention in using the transcripts from the interviews has been to let the facility managers’ voices express thoughts about management and information use, and I will use relatively long excerpts from the transcripts to bring the managers close to the reader. With only a few persons interviewed, views expressed here can not be generalized but will reflect individual voices and reflections. They do however bring in important aspects of the management and information systems fields that might shed some light on a few of the ‘whys’ in the “information systems in developing countries” research.

6.1 The health services organization in Cape Town

The public health services in Cape Town are provided by The Province of Western Cape (PAWC) jointly with the City of Cape Town Local Authorities (LA). The Cape Town Metropole is one Provincial district. At the time of my field study (Dec 2003), LA had recently changed their organization and concepts. Until December 2000 the local government consisted of 6 Municipalities with 6 administrative structures. Now there was 1 Municipality and 1 Council for the area, but still 6 administrative structures. District, which is a health services term, had been named Sub-District and the number reduced from 11 to 8. The City Health Department had now one Director of Health and one Director of Health Information, coordinating the information from the whole city. Each Sub-District had a health information officer. A (Sub-) District Management Team coordinated the services from both organizations.

![Figure 6.1 Cape Town health districts and population 2003](image-url)
The public health district system is responsible for providing promotive, preventive, curative, environmental and specialized health services. PAWC provided curative services to adults and children > 13 years. LA provided environmental care, preventive care and curative care to children < 13. The overall goal was to integrate the services and the two structures. The provincial Community Health Centers (CHC) were for example now supposed to give curative care also to children under 13 and other types of services, although this was not how it worked in the field yet. I will go deeper into the organizational change and the challenges this entailed for the health care provision in the City in Section 6.4. The PHC services were mainly free, but PAWC had rates for a monthly income limit to get the services for free. The payment if income exceeded the limit was however much lower than in private health care sector, for the same kind of treatment.

The City Health Website presented the public health services as follows:

Community Health Services are provided by Clinics managed by LA, and Day Hospitals (Community Health Centers) and Midwife Obstetric Units (birthing units or MOUs) managed by CHSO, and include the following services:

- Well baby clinics (baby feeding, development assessment, weight monitoring and immunization).
- Curative care for children (acute and chronic illnesses such as coughs, colds, diarrhoea, skin rashes and asthma etc).
- Family planning (contraception methods and advice, including referrals for termination of pregnancy).
- Pap smear screening (30 - 59 years screening for cancer of the cervix).
- Diagnosis and treatment of TB.
- Treatment of sexually transmitted infections.
- Curative care for adults (acute and chronic illnesses such as flu, bronchitis, diabetes, hypertension etc).
- Pregnancy tests, antenatal care, birthing and post-natal care.
- Dental care

Environmental health was managed by the LA, and environmental health officers worked in the areas of air pollution, safe food, sanitation and smoking regulations. Waste management in the facilities was part of their responsibilities and waste management had a separate information system. Health educators, often funded by NGO’s, worked locally in the community. They had the same training as the nurses on nutrition, hygiene and life skills, and they visited families in their homes, giving general education in these fields. One of the facilities visited showed a map over each health educator’s catchment area, where it was marked where the educators lived and the families in their neighborhood that they were visiting. Thus the facility manager got a pretty good overview of the health situation in the community.

Figure 6.2 shows some of the organizational units and how they are connected. My research has been within the lower levels (marked in red).
In addition to the public health care system, private health care (ca 30%), and NGO’s like Doctors without Borders (MSF) provided health services. NGO’s often worked in the poorest, black areas and cooperated with the local facilities and municipalities. The LA supplied for example vaccines for immunization to the NGO’s and reporting back to the central information office was expected.

The main challenges in health care are malnutrition, TB, HIV/AIDS and sexually transmitted infections (STI). TB had separate, vertical programs, dedicated nurses for treatment and statistics as also HIV/AIDS/STI. Some facilities had received resources for Anti-Retroviral (ARV)/HIV treatment. One of the clinics visited worked in close cooperation with MSF on TB patients, and MSF did their own research on the relation between the increase in TB and HIV/AIDS incidence. The cooperation with MSF in this clinic and their findings had led to more resources for ARV treatment, because MSF had been able to show correlation between HIV/AIDS and the increase in TB incidence. The money had been given to the Sub-District which again had distributed it to MSF. Sites without general TB/HIV treatment would not get money for ARV until they had established this. The facilities that did receive money for ARV medicine did however not get more staff for this additional treatment.

6.2 Health information management in Cape Town

Data and information flow in the health service organizations in CT followed different paths as PAWC and LA had separate structures. Although the information in LA and PAWC followed different ways, there was communication between the top information managers in the Metropole so that they could exchange information on request. There was established a
“Metropole Information Group” (MIG) with representatives from both line structures to develop policy, missions and visions. A sub-group, the “Metropole District Health Information Group” (MDHIG) worked on a more practical level. The members in the two groups overlapped.

The facilities belonging to the PAWC organization submitted their RMR monthly to the information office in the Metro District Health Services (MDHS). In the LA organization the facility manager submitted to the Information Officer in Area or Sub-District. An Essential Data Set (EDS) had been developed and the RMR forms for PAWC and LA had been coordinated and looked very much the same, only with different categories as to what kind of services were rendered (table 6.2). The information administrations were also working on improving the EDS to cover facilities with combined services.

The Sub-District / Area information officer collected different kind of data from different sources in the area and submitted to the central information office. According to the LA Information Director, some of the information from the two health services structures was coordinated, some not. The information was then entered in the DHIS, statistics were calculated and graphs made. Reports were submitted to Province and feedback given to lower levels. The TB module had been removed from the DHIS and PFA and TB had now its own programme. A TB coordinator for the Sub-District handled this. Voluntary CT (HIV tests), Preventive mother to child transmission (PMTCT), and Notifiable diseases (f.ex. Sars) also had separate vertical information system. See table 6.1 for a short overview of the different reporting systems handled by LA. From the private sector, births and infectious diseases, according to lists, were reported to the city central office. In the LA system, feedback in terms of monthly and quarterly statistics for the Sub-District / Area and facilities was then sent through the proper channels back to the facility managers.

<table>
<thead>
<tr>
<th>Information reporting systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine monthly reports (RMR)</td>
</tr>
<tr>
<td>DHIS</td>
</tr>
<tr>
<td>PFA</td>
</tr>
<tr>
<td>AIDS/Voluntary CT (HIV test)</td>
</tr>
<tr>
<td>Preventive mother to child transmission (PMTCT)</td>
</tr>
<tr>
<td>Births and deaths</td>
</tr>
<tr>
<td>Notifiable diseases</td>
</tr>
</tbody>
</table>

Table 6.1 Information reporting systems handled by LA
<table>
<thead>
<tr>
<th>Data Category</th>
<th>Data Item</th>
<th>No</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Attendance at Facilities and on outreach visits</strong></td>
<td>under 5 years of age before 1:00 p.m.</td>
<td>01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>under 5 years of age after 1:00 p.m.</td>
<td>02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;=5 and &lt; 60 yrs before 1:00 p.m.</td>
<td>03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;=5 and &lt; 60 yrs after 1:00 p.m.</td>
<td>04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;= 60 yrs before 1:00 p.m.</td>
<td>05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;= 60 yrs after 1:00 p.m.</td>
<td>06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Growth Monitoring</strong></td>
<td>&lt; 3rd %ile &amp; = &gt;60% EWA &lt;5 yrs (new)</td>
<td>07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;60% EWA &lt;5 yrs (new)</td>
<td>08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Growth failing / failure &lt;5 yrs (new)</td>
<td>09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Children under 5 years Weighed</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>First Contact with Health Service</strong></td>
<td>Babies exam. 1st time up to and including 6 weeks</td>
<td>11</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Development Assessment</strong></td>
<td>Children under 2 years who had developmental screening done</td>
<td>12</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Children under 2 years with suspected developmental delay</td>
<td>13</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td><strong>Immunisation</strong></td>
<td>BCG (first dose under the age of one)</td>
<td>14</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>TOPV (at birth)</td>
<td>15</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>DTP-HIB, TOPV, HEPB (1st dose)</td>
<td>16</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>DTP-HIB, TOPV, HEPB (2nd dose)</td>
<td>17</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>DTP-HIB, TOPV, HEPB (3rd dose)</td>
<td>18</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Measles 6 months (high risk areas)</td>
<td>19</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Measles 1st dose (9 months)</td>
<td>20</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Measles 2nd dose, TOPV, DPT (18 months)</td>
<td>21</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td><strong>Prevention Care</strong></td>
<td>Children &lt;5 years seen for prevention services ONLY</td>
<td>22</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td><strong>Mental Health</strong></td>
<td>Visits Old Clients</td>
<td>23</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>New clients seen</td>
<td>24</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Clients referred to 2nd level</td>
<td>25</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Clients referred to 3rd level</td>
<td>26</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Psychiatric discharge patients seen</td>
<td>27</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td><strong>Curative Services</strong></td>
<td>Seen by MO</td>
<td>28</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Seen by PN for curative</td>
<td>29</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Seen by PN and referred to MO</td>
<td>30</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Children &lt;5 years</td>
<td>31</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Children &lt;5 years diarrhoea (new)</td>
<td>32</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Children under 5 years with lower respiratory tract infection (new)</td>
<td>33</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>STD (new)</td>
<td>34</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Males with PUD (new)</td>
<td>35</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
<td>Value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------------------------------------------</td>
<td>-------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STD Contact Slips Issued</td>
<td></td>
<td>36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of STD Contacts Treated</td>
<td></td>
<td>37</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PAM Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seen by physiotherapist</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seen by social worker</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seen by occupational therapist</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seen by radiographer</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seen by pharmacist</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reproductive and Women’s Health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family Planning Clients Seen &lt;18</td>
<td>43</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family Planning Clients Seen &gt;18</td>
<td>44</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oral Contraceptives Issued</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Depo Provera given</td>
<td>46</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nuristerate given</td>
<td>47</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IUCD’s</td>
<td>48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Condoms issued</td>
<td>49</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emergency contraception</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Referred for TOP</td>
<td>51</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cervical (Pap) smears 30 – 59 yrs old</td>
<td>52</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sterilisations #</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vasectomies #</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Domestic violence</strong></td>
<td>No of women referred for domestic violence intervention</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TB DOTS Attendances</strong></td>
<td>Daily TB DOTS Attendances</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Medication</strong></td>
<td>All prescriptions issued</td>
<td>57</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All Items dispensed per script</td>
<td>58</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Personnel</strong></td>
<td>Actual nurse-days worked</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Actual doctor-days worked</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maternal</strong></td>
<td>Booking visits &lt; 20 weeks</td>
<td>61</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Booking visits &gt;= 20 weeks</td>
<td>62</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Antenatal follow-up visits</td>
<td>63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post Natal Visits</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dental</strong></td>
<td>Seen &lt; 5 yrs</td>
<td>65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seen &gt;= 5 yrs and &lt;18 yrs</td>
<td>66</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seen &gt;= 18 yrs</td>
<td>67</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All Extractions</td>
<td>68</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All Fissure sealants</td>
<td>69</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Trauma</strong></td>
<td>Transport Related cases</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assault</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rape cases &lt; 18 yrs</td>
<td>72</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adult Rape Cases &gt;= 18 yrs</td>
<td>73</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Theatre</strong></td>
<td>Cases treated in Theatre</td>
<td>74</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Local Anaesthetics</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Anaesthetics</td>
<td>76</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chronic Care</strong></td>
<td>Total chronic cases</td>
<td>77</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diabetes mellitus</td>
<td>78</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hypertension</td>
<td>79</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.2  Routine monthly report PHC services – for combined services – developed by Local Authorities
Feedback to facility managers

CHSO RMR Submission Rate
(in time - or too late)

Figure 6.3: Submission rate - feedback to facility from CHSO

<table>
<thead>
<tr>
<th>Location</th>
<th>03-Apr</th>
<th>03-May</th>
<th>03-Jun</th>
<th>03-Jul</th>
<th>03-Aug</th>
<th>03-Sep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaauwberg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nyanga</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cape Town Central</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tygerberg East</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oostenberg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tygerberg West</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peninsula</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitchells Plain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heiderberg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athlone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Khayelisha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Area / Sub-District had “Monthly Health Services Management Meetings” with the facility managers, where the RMR statistics were reviewed and discussed. A meeting with Sub-District managers, together with the environmental health officers was held quarterly. A “Quarterly Report and City Health Performance System” was used to monitor the development in the different categories and achievements in the different priority areas. Feedback from the CHSO would be in terms of a “RMR Submission Rate”; i.e. an overview of all districts that shows whether the facilities have submitted in time or not (figure 6.3) and a “Routine Raw Data” for each facility showing accumulated figures for 1 year of headcount.

By the time of my field work, there was still a “Metro Region Information Office” (MRIO) in the Provincial hierarchy. This office was responsible for hospital information on secondary and primary level. They had done their own audit of their information system and worked with the results. This was not part of the HISP process. MRIO looked in terms of health programmes – to align the information with the programmes’ strategy. The future existence of this office was unsure. I was told that the new structure (from June 2003) had been decided very quickly from senior managers at the head of the Health Department and nobody at lower levels was informed. In the new organizational structure CHSO would be responsible for primary level facilities’ line management information and the role of the staff in MRIO was unsure. The personnel here would be superfluous and re-distributed to other positions in the Provincial administration. The unit was however still operative.

“Data Quality” workshops, i.e. training of health workers and facility managers in information systems and information use were carried out by the CHSO for the provincial facilities only. This was done in 2 phases with a workshop at the facility for all staff in phase 1. Phase 2 would be a whole day at CHSO for facility managers only, for training and evaluation. A Waiting Time Survey was performed in all the LA clinics without the PAWC facilities being involved. Even where a clinic and a CHC existed under the same roof, only CHC staff participated in the course.

The diagram in figure 6.2 represents the flow of data/information from the point of collection to the then Community Health Services Organization (CHSO) until it reaches the provincial level. The staggered line encapsulates the infrastructure of the CHSO before organizational change on 1. June 2003. Fragmentation of services remains a challenge to the newly formed Metro District Health Services. The dotted line point to a futuristic model where all data will flow through the Metro District Health Services (MDHS) information unit before it is forwarded to the Provincial office (as described by MDHS info office).
During my first weeks in Cape Town, I tried to get an understanding of the structures of both the health services and the health information management organization. Figure 6.3 tries to capture the existing structures by the time of my fieldwork and some of the changes. It is difficult to get a correct overview of the actual and planned structures it will however give a certain picture of the structures.
Figure 6.5: Health services and health information organizations in Cape Town
6.3 Health information software development

There were 2 parallel health information systems in PHC in Cape Town; DHIS and the Patient Folder Application (PFA). Both information systems were facility based. This means that only those who visit a health facility will be counted in the health statistics. The question of facility based versus community or population based systems is however a discussion on its own and something I will not discuss here. Another discussion is anonymized versus patient based information systems. In Cape Town there were different ideas as to what strategy to build on.

On the one hand, HISP with its software DHIS (described in Section 3.3), was the central actor in the health information management. In cooperation with the National Health Department and USAID/Equity project, DHIS had been adopted as a national standard and rolled out in all 9 provinces in South Africa. This software package was well developed and suitable for collecting anonymized data, and different kind of reports could be compiled for management especially at district level and above.

On the other hand were the Local Authorities in Cape Town, which wanted a more patient based information system. The PFA is a patient based system and has been developed locally in Cape Town. All data registered can be referred to a person. This was regarded to give more reliable data by the data collectors I talked to.

The PFA was implemented in the LA facilities and in the simplest version it was functioning as an electronic patient folder. So far they had to fill in RMR forms manually and then fax. One facility had an extended version of PFA (a prototype) implemented for testing and they were very satisfied with its functionality. In this extended version it was possible to compile reports like the “Monthly immunisation statistics form” (Table 6.3), and the requested RMR (Table 6.4). It was however not yet possible to submit electronically, so they had to print out and send the forms by fax. The City Health Director, at a visit in this facility, had shown great interest in the PFA and suggested that this ought to be implemented “all over town”.

In the facilities, depending on the size and number of staff, nurses, clerk(s) and/or manager collected, entered and added up the data, daily, weekly and monthly. Each facility was supposed to have a person responsible for data collection and submission and in the facilities visited, this was mainly the facility manager, but clerks often did the day to day registration.

One of the LA clinics had both the PFA and DHIS implemented. The clerk entered the patient information in PFA. The manager entered the monthly data by the end of the month in the DHIS and submitted electronically to the Area manager, but she had limited skills in utilizing the functionality of the software. I asked if she knew or used the software for more than this, but she claimed not to be a ‘computer person’ and this was all she could do within DHIS.

The PAWC Community Health Centres (CHC) and Day Hospitals used the DHIS software, that is, the CHC’s with a working computer. With DHIS implemented and internet connection the facility could submit the RMR electronically to the CHSO. Otherwise they would have to print out the report and fax it. One of the facilities that, for the time being did not have a computer that was functioning, told that they had to visit the head office once a month to enter the data there. Ordering of stock in the PAWC facilities was also computer-based. The system is called Logis. The ordering was done electronically, but the facilities without computers had
to bring their orders to District Manager Team or to the regional admin. office (PAWC) at Woodstock and order in the computer system there. I asked key people in the information management about the relation between the DHIS and PFA and was told that ‘somebody’ was working on an interface between the two systems for submission of data to province.

Table 6.3 Monthly immunisation statistics form from Patient Folder Application
<table>
<thead>
<tr>
<th><strong>Date run</strong></th>
<th>2003-11-25</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Attendance</strong></td>
<td></td>
</tr>
<tr>
<td>Less than 5 Years - AM</td>
<td>551</td>
</tr>
<tr>
<td>Equal and greater than 5 years - AM</td>
<td>600</td>
</tr>
<tr>
<td>Less than 5 Years - PM</td>
<td>123</td>
</tr>
<tr>
<td>Equal and greater than 5 Years - PM</td>
<td>245</td>
</tr>
<tr>
<td><strong>Growth Monitoring</strong></td>
<td></td>
</tr>
<tr>
<td>&lt; 3rd ile &amp; ±60%ile EWA</td>
<td>0</td>
</tr>
<tr>
<td>&lt; 60%ile EWA &lt;5 yrs</td>
<td>0</td>
</tr>
<tr>
<td>Growth failure/failure &lt;5yrs</td>
<td>0</td>
</tr>
<tr>
<td>Children &lt;5 yrs weighted</td>
<td>584</td>
</tr>
<tr>
<td><strong>Development Assessment</strong></td>
<td></td>
</tr>
<tr>
<td>Babies examined 1st time up to 6 weeks</td>
<td>22</td>
</tr>
<tr>
<td>Children &lt;2 Years who had Dev. Assess.</td>
<td>54</td>
</tr>
<tr>
<td>Children &lt;2 Years with Dev. delay</td>
<td>0</td>
</tr>
<tr>
<td><strong>Laboratory</strong></td>
<td></td>
</tr>
<tr>
<td>Cervical (PAPs) smear</td>
<td>12</td>
</tr>
<tr>
<td><strong>Prevention Care</strong></td>
<td></td>
</tr>
<tr>
<td>Children &lt;5 yrs seen for prevent.</td>
<td>163</td>
</tr>
<tr>
<td><strong>Mental Health</strong></td>
<td></td>
</tr>
<tr>
<td>Mental Illness</td>
<td>0</td>
</tr>
<tr>
<td>New client seen</td>
<td>0</td>
</tr>
<tr>
<td>Referred to 2nd level</td>
<td>0</td>
</tr>
<tr>
<td>Referred to 3rd level</td>
<td>0</td>
</tr>
<tr>
<td><strong>Curative Services</strong></td>
<td></td>
</tr>
<tr>
<td>Seen by a Medical Officer</td>
<td>12</td>
</tr>
<tr>
<td>Seen by Professional Nurse</td>
<td>49</td>
</tr>
<tr>
<td>Seen by PN and referred to MO</td>
<td>5</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>6</td>
</tr>
<tr>
<td>Children &lt;5 Years with Acute Chest Infection</td>
<td>12</td>
</tr>
<tr>
<td>STD (New cases)</td>
<td>16</td>
</tr>
<tr>
<td>PUD (New cases)</td>
<td>7</td>
</tr>
<tr>
<td>STD contact slips issued</td>
<td>17</td>
</tr>
<tr>
<td>STD contact healed</td>
<td>11</td>
</tr>
<tr>
<td><strong>Reproductive Health</strong></td>
<td></td>
</tr>
<tr>
<td>Oral contraception issued</td>
<td>92</td>
</tr>
<tr>
<td>Depo Provera given</td>
<td>147</td>
</tr>
<tr>
<td>NURSERATE given</td>
<td>78</td>
</tr>
<tr>
<td>IUCDs</td>
<td>0</td>
</tr>
<tr>
<td>Sterilisation</td>
<td>0</td>
</tr>
<tr>
<td>Vasectomy</td>
<td>0</td>
</tr>
<tr>
<td>Condoms packets of 10</td>
<td>1</td>
</tr>
<tr>
<td>Emergency contraception issued</td>
<td>0</td>
</tr>
<tr>
<td>Referred for TOP</td>
<td>1</td>
</tr>
<tr>
<td>Family planning patient seen</td>
<td>261</td>
</tr>
<tr>
<td>Booking visits &lt;20 weeks</td>
<td>0</td>
</tr>
<tr>
<td>Booking visits &gt;=20 weeks</td>
<td>0</td>
</tr>
<tr>
<td>Antenatal patient seen</td>
<td>0</td>
</tr>
<tr>
<td>Antenatal follow-up visits</td>
<td>0</td>
</tr>
<tr>
<td>Live births</td>
<td>0</td>
</tr>
<tr>
<td>Live births &lt;2500</td>
<td>0</td>
</tr>
<tr>
<td>Still births</td>
<td>0</td>
</tr>
<tr>
<td>Unbooked deliveries</td>
<td>0</td>
</tr>
<tr>
<td>Women who deliver with parity &gt;4</td>
<td>0</td>
</tr>
<tr>
<td><strong>TB Attendance</strong></td>
<td></td>
</tr>
<tr>
<td>Daily TB Attendances</td>
<td>2</td>
</tr>
<tr>
<td><strong>Medication</strong></td>
<td></td>
</tr>
<tr>
<td>Prescriptions issued</td>
<td>754</td>
</tr>
<tr>
<td>Items dispensed</td>
<td>1,810</td>
</tr>
<tr>
<td><strong>Cronic Care</strong></td>
<td></td>
</tr>
<tr>
<td>Cronic Cases</td>
<td>0</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>0</td>
</tr>
<tr>
<td>Hypertension</td>
<td>0</td>
</tr>
<tr>
<td>Epilepsy</td>
<td>0</td>
</tr>
<tr>
<td>Asthma</td>
<td>0</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
</tr>
<tr>
<td>Clients seen for other services</td>
<td>246</td>
</tr>
<tr>
<td>Dressings</td>
<td>14</td>
</tr>
<tr>
<td><strong>PAM Service</strong></td>
<td></td>
</tr>
<tr>
<td>Seen by physiotherapist</td>
<td>0</td>
</tr>
<tr>
<td>Seen by social worker</td>
<td>0</td>
</tr>
<tr>
<td>Seen by educational therapist</td>
<td>0</td>
</tr>
<tr>
<td>Seen by Radiographer</td>
<td>0</td>
</tr>
<tr>
<td><strong>Dental</strong></td>
<td></td>
</tr>
<tr>
<td>Extractions (all)</td>
<td>0</td>
</tr>
<tr>
<td>Fissure sealants</td>
<td>0</td>
</tr>
<tr>
<td>Transport related cases</td>
<td>0</td>
</tr>
<tr>
<td><strong>Trauma</strong></td>
<td></td>
</tr>
<tr>
<td>Assault</td>
<td>0</td>
</tr>
<tr>
<td>Rape cases</td>
<td>0</td>
</tr>
<tr>
<td><strong>Theatre</strong></td>
<td></td>
</tr>
<tr>
<td>Cases treated in theatre</td>
<td>0</td>
</tr>
<tr>
<td>Local anaesthetics</td>
<td>0</td>
</tr>
<tr>
<td>General anaesthetics</td>
<td>0</td>
</tr>
<tr>
<td><strong>Rehabilitation Services</strong></td>
<td></td>
</tr>
<tr>
<td>Assistive devices required</td>
<td>0</td>
</tr>
<tr>
<td>Assistive devices issued</td>
<td>0</td>
</tr>
<tr>
<td>Home visits done</td>
<td>0</td>
</tr>
<tr>
<td>Referred to 2nd &amp; 3rd level</td>
<td>0</td>
</tr>
<tr>
<td><strong>Domestic violence</strong></td>
<td></td>
</tr>
<tr>
<td>No fo women referred for domestic violence intervention</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 6.4 Routine monthly report compiled from Patient Folder Application (PFA)
Both software packages had their proponents. The DHIS supporters emphasized the flexibility and functionality in the software and the possibility to make changes and adjustments without having the programmer to do it. This was because DHIS is an open source system that anyone can modify according to their needs, although you need to have the skills for doing it. The anonymized data were easy to submit to higher authorities and a good basis for reporting and planning at higher levels.

Opponents claimed that this was not as easy as it sounds. The changes had to be distributed to all the computers that run the software and upgrades of software and hardware did not happen that often. Users also claimed that when they had problems with DHIS, it was almost impossible to get support. Some of the opponents of DHIS thought the software was not sufficient for their needs. The software did not provide the information needed by programme managers. The way they saw it, DHIS had actually collapsed the information for lot of the programmes when it was implemented and the basis changed from programmes to Minimum Data Set.

The PFA supporters emphasized that it was easy to learn and to use. The software required little computer power and the patient based information was more reliable than the aggregated data from tick registers and tally sheets, because registering the patient data did not allow you to do mistakes, “like the ones you do on the tally sheets, i.e. counting to many or forget to count, male instead of female, > 5 instead of < 5 and so on” (HISP actor). I also had the impression that, because the PFA was developed locally in Cape Town, people felt more ownership to this product. On the negative side was mentioned old technology, lack of flexibility, as you were not allowed to add indicators or make other changes. You will need the programmer to do changes or add features, and it has to be done manually on each and every computer.

When I asked different persons about the two systems, I got different answers. I asked if these were competing software packages, but this was denied by some because of the negative sides mentioned. The PFA was not satisfactory and would not be a competitor to DHIS, while others claimed that the PFA was the software to build on in Cape Town and that the extended version that could compile reports would cover the needs for the city.

In the facility where they had close cooperation with MSF in the treatment of patients with TB (photo 6.1), the statistics for TB/HIV/VCT was problematic because MSF had their own forms and did not find the RMR forms suitable for their purposes. MSF and the facility manager worked however on a possible integration of data collection, but the current situation was not satisfactory and lead to extra work and possible errors in the registration.

Strategic documents both national and in the LA tended to support the development of a patient based system. A strategy document from the Cape Town City IT Directorate discusses the health information system situation in the City and does a comparison between the TB module in PFA and DHIS. They recommended to building on the PFA in the City, and roll it out through the District.
Photo 6.1 People on ARV treatment celebrate the 2nd anniversary of the ARV programme

(From front page MSF Activity Report 2003)

In the “Strategic Priorities for the National Health System, 2004-2009”, Situational Analysis, a patient information system is mentioned as one priority:

The health information system, which is critical for monitoring the performance of the health system and to increase access to health services especially in rural areas, has been strengthened in a number of ways during the past 5 years. However, a uniform patient information system which will enable the health system to track patients regardless of where they present, has yet to be developed (Department of Health 2004, p. 5).

The DHIS had obviously important functions for planning at district level and above, while the PFA seemed more relevant for patient management and facility management. The reporting functionality in the extended version also made it relevant at district level. It seemed like DHIS and PFA mainly served different needs at different service levels and an interface between the two, as mentioned, might be a reasonable solution, or further development of the PFA might replace DHIS in the future.

It was obvious that the many different information systems and changes increased the workload for the facilities in many ways and did not promote a positive attitude towards data collection and statistics. The idea of a unified nationwide information system covering all needs seemed to be an unrealistic dream.

6.4 Organizational change

Since 1994 there had been an ongoing process to reconstruct the health service organization in South Africa. The goal of implementing primary health care as an overarching principle and district as the important administrative unit had been implemented stepwise, which meant that the service personnel, both administrative and operative, had been exposed to several organizational changes during the last 10 years. This goes for both health care and health information systems organization nationwide, and Cape Town was no exception as described in Section 6.1.
From organization theory we know that participation in decisions that affect one’s role in the organization and distribution of power are important factors to support organizational change (Katz and Kahn 1978; Schein 1980). Although the goals and intentions were the best, the actual situation in Cape Town seemed not to have met these requirements. The changes in the health delivery line organization had been imposed from top to bottom, which was not in accordance with the RDP goal to “promote a new culture of democratic management in the health sector (…)” and definitely not a recommended way of motivating staff at lower levels.

The ideal of participation had not been practiced in the overall reconstruction and development process. The reasons may be found in a general organizational culture that traditionally did not question decisions made from superiors (Williamson 2000). The consequences for the information system and use of information as a success or not a success will also have to be viewed in the light of these facts.

Statements from managers both in health services and health information indicated that the changes very much had “been told” to the lower levels and also often very shortly before the changes took place. When I asked the facility managers and staff about these changes, there seemed to be a shared view that these were, not only made over their heads; they did not get informed until the last minute.

Yes, but we don’t know where we will belong, or when it will be. Probably it’s supposed to be the end of the year, you know, but we don’t know. You know, with the Council, you never know. That’s why, they said that, by the end of the year, they are going to do replacements; by the end of December they are going to do replacements, and they are going to decide on the contracts and give them maybe 3 year contracts, those who they are going to keep on, but we don’t actually know for sure whether it is going to be the end of December or not. It might be extended if they are not ready - why, the Council very often are not ready. Two, four or another 3 months - but we don’t know.

(Facility manager about organizational change)

At the time of my research the health services at local level were provided by the 2 administrations as described in Section 6.1; the Provincial administration (PAWC) and the Cape Town Local Authorities (LA). The province provided curative services and was responsible for hospitals at different levels including day clinics and health centers at facility level. The City Health Directorate was responsible for preventive and promotive care and environmental care was administered by the municipality. A new decision from Central Government 2002 was that LA should only be responsible for environmental health services and not PHC, though this decision seemed not to have been implemented in practice. One of my informants put it this way: “Changes, changes of changes, changes of thoughts about change” (Information Manager, Cape Town).

Integration of services and organization

A long-term goal for the country was to integrate the health services, so that facilities from both administrations should give preventive, promotive, curative and also environmental services. This meant a merge of the two structures, which had turned out to be more difficult than expected. More and more CHC and clinics were now physically sited under the same roof, but had separate administrations, staff and services. Some facilities had almost completed the amalgamation while others only shared reception and a few services. One of the clinics visited had fully integrated services and they submitted the same combined
statistics to the two information administrations, but they still had separate budgets and participated in different staff meetings when operational plans were worked out and evaluated. The CHC and clinic had thus separate appointed managers, but in this case the two had chosen to let one of them be “Sister in charge” of the combined unit.

This facility seemed to have succeeded in integrating services and administration as far as possible. As far as they knew, only one or may be two more had achieved this stage of integration. Although the overall organizational system did not provide regulations and a complete new organization to fit into, they had developed their own ‘working model’ of cooperation and management from day to day. As there was no supporting system for the integration process, it would very much depend on the facility managers how they managed to cope with it.

In other facilities the merging process caused problems in different areas. Practical problems could start in the reception. In one site they shared reception and there was one shared patient folder, both as paper version and the electronic version. When information about treatment performed during the patient’s visit was to be registered electronically, there was a problem. As PAWC and LA used different incompatible software, depending on the type of treatment, the headcount had to be registered in separate systems. Currently only one of the administrations had pc’s that were working, so the other was allowed to use their pc’s but had to wait until the end of the day – or else if the computers were available during the day.

Headcount also caused problems. For example: the patient gets his/her folder in the reception and goes with it to a doctor, i.e. the Day Hospital (PAWC) gets the headcount. Now the doctor thinks that a nurse can do the job and the patient moves to a nurse for consulting (LA), so the headcount goes for the PAWC and the LA treat the patient. In this facility headcount was only done in the reception for all services. There was no headcount on tally sheets in the different stations, like in some of the other facilities I visited, but information about treatment was entered in the patient folder and returned to the reception.

Simple things like this were not promoting the merging goal and influenced the way the staff judged the reliability of the data. The financial side was another problem. Wages, resources for equipment and maintenance of buildings were different. In a combined facility it was not uncommon to help one another out in the working stations when there were vacancies or people were on sick leave, only they were paid differently for doing the same work. This led to envy and dissatisfaction among the staff groups.

This general dissatisfaction could lead to odd situations: Who was responsible for sick children? The age limits for treatment in PAWC and LA were > 13 years or < 13 years (old system). I overheard a discussion where a 13 year old girl was sent from one station to another, as she was neither < 13 nor > 13. This situation may seem ridiculous, but I interpret it more as a sign of deep dissatisfaction with the whole situation.

A facility manager who was considering leaving her position gives this deep sigh of frustration:

Because of all the change I am tired of change. Since 1994, these consistent change. First it was the health policy they changed that, we had to get this primary health care, we are since then still in a changing phase because, then its this program then its that program that’s changing (Leon, Bhuu et al. 2001, p. 208).
6.5 ICT as a tool for change

As in many developing countries, the introduction of computerized information systems in the transformation of the health system in South Africa was seen as a positive contribution to the process of organizational change. With computers not only at higher levels, but also in every health facility, it would be possible to collect, submit and search for relevant information rapidly. The monitoring of the health status and information as support for planning and decision making was emphasized. Computers and computerization of data collection and information was seen as an important tool for lightening the work load, ease communication and a necessary tool for providing useful information for decision making in management at all levels.

1.3 Health Districts/sub-districts should, where feasible, provide health facilities with one or more PCs, install the DHIS Software + a dial-up link with email, and train facility staff and managers to capture, validate, and use their own data. This not only speeds up data capture and validation, it also increases computer literacy and feelings of ownership and pride towards their own data/information at relatively low cost (NHSSA Committee Data Flow Policy).

Introducing DHIS and the PFA has been done with the ultimate purpose of increased efficiency, more equitable distribution of health services and better quality in the health care delivery. Given the right basic conditions, this might well have been the case, but in developing countries (as also in so-called developed countries) working towards this goal may also entail traps and negative side-effects at many levels. Introducing computers has many aspects; political, economic and organizational and when we look at the consequences at facility level the outcome seem not to have met the expectations.

While the importance of information technology is undisputed, the use of computers at district and facility level as an essential tool for processing data and interpreting information is debated. Scarce recourses, lack of information technology infra structure and skill in developing countries form significant constraints to utilisation of computers as part of data handling and processing of information (Williamson 2000, p. 6).

At facility level the workload is high on all staff. To introduce computers means need for new knowledge in how to use them; not only the actual information system but also a general competence in ICT. DHIS for example requires general skills in computer use, skills in Windows OS and the Microsoft software Word, Excel and Access, in addition to skills in using DHIS itself. Courses, training in computer use and calculating statistics will have to compete with courses in medical care (learn how to treat with new medicine like ARV) and in general management, for money and time use.

For those who had computers, the DHIS software required more computer-power than older computers could handle. The one facility in my sample that had DHIS installed, had personnel with limited skills in using it, and the computer in the office run a Win95 operative system with little data power. This made it a trial of patience to try to use some of the functions inscribed in the software.

As discussed in the discourse analysis, ICT based projects seem to attract donors and funds are given to these projects, something that also creates dependency on donors and their conditions for, as one example purchasing and maintaining equipment. My research findings showed a gap between the goals of the national strategy and HISP and the situation at facility
level. The managers and staff would like to have computers and training, did however not see how this would be possible because of lack of money, equipment and time.

Lack of computers and computer skills, combined with the view that most of the anonymized data was mainly useful for higher authorities, led to alienation towards the DHIS. It also led to an increase in the gap between those who got access to computer and knowledge and learned how to utilize the computer software, and those who did not. In a medium size facility they had 2 computers in the reception. They were online for e-mails, but could not submit RMR from PFA. The managers referred to possible plans and rumours about the future.

‘They’ said that we were supposed to get DHIS, and a clerk to handle it. There was also supposed to be a computer in the TB room and in the pharmacy – that was the plan (information manager about computerization).

They were by that time without a clerk that knew the DHIS and the others still had to go to computer courses. They had no idea of when this was going to happen.

In the LA clinic with both PFA and DHIS installed a clerk entered the patient data into PFA, but the clerk knew nothing about DHIS. The monthly RMR on DHIS was done by the facility manager, who had taken the data from every day/week forms manually and then entered the numbers in the DHIS software and submitted. She claimed that this was all she knew about the use of DHIS and its functionality and if they had trouble with the computer, they could call the Health information officer in the municipality for support. For the facility manager this use of DHIS was no more than a ‘fax device’, but for the Area manager it was of course useful to have the data registered in the DHIS.

At district level and also in Sub-District and Area information management, the situation was different. These personnel had both the equipment and the opportunity to get trained in use of computers, something that could lead to a lack of mutual understanding between the lower levels, and thus contribute to increase this gap.

6.6 The health facility

The first level of care forms the core of most health information systems. It is the primary delivery point for services, the principal point of contact for patients, and the primary location for data collection’ (RHINO 2006, p. 17)

The health facility is the cornerstone in the PHC approach and the clinics and CHC are the health units closest to the people. Free health services for all was an important political goal and a great challenge because of the current social, economic and health situation.

In many areas of South Africa, PHC facilities may be the only available and/or readily accessible health services for the population, and therefore PHC services, providers and facilities carry a large burden and responsibility for the provision of health care (Ljumba 2002).

Most of the facilities visited in Cape Town were sited in poor areas. The facilities were surrounded by barbed wires and some needed security personnel to protect from theft and crime. One facility had been in the crossfire between violent gangs and was threatened by their shootings. Another had guarded entrance to the building area and also here there had been shootings. Despite these threatening incidents, the managers seemed courageous and did not make much out of it, while I, who had experienced nothing like this, was rather impressed.
Photo 6.2 & 6.3: clinic and day hospital in Cape Town

The physical conditions in some of the houses were very bad, and this was also commented on by the staff. They thought it to be very de-motivating to work under these conditions and said that they almost felt it physically when they entered the house in the morning. One facility used the manager’s office for consultations so she would have to use the pharmacy for doing managerial work, and there was no functioning computer in the facility.

A general impression was that, despite these poor environments, dangerous situations and huge challenges, the facility managers seemed confident about their jobs and they showed a feeling of ownership to the facility and their work.

Photo 6.4: ‘All-in-one’ pharmacy and office
6.6.1 Management and decision making power

The health facilities are supposed to provide comprehensive PHC services to all people. The hierarchical structure of the health care is shown in Section 2.2.1, figure 2.4. It says however nothing about the responsibilities, the workload and decision making power at each level. Although the role of a facility manager was relatively new, the managers interviewed all had many years of experience as professional nurses and also of being in charge of a clinic. They did however not see themselves as ‘real’ managers for several reasons. For one thing, they still had to be part of the work force, which gave little time for administrative work, planning and managing. Second, their decision making power was very limited. This fact was confirmed by key personnel in information management and research.

So yes, there is more. I would say there is more administration that is expected from the manager, and more responsibilities, because now you are, you are definitely responsible for it, because you have got a designated post. So there is more responsibility and (.) and a (..) but unfortunately I think all the managers feel that, although we are managers, we don’t manage as such because we have to be part of the work force. (.....) You could go around your staff and there would be a lot of things that you would do as a manager, if you weren’t actually work force (facility manager about being a manager).

Management of the health facility and provision of health services includes the management of patients, staff, resources and transport within the limits of a given budget. Other concerns were security and crime. The finances were provided by the Sub-District where a complete budget for each facility was developed and detailed distribution of money for different items would be set, like medical equipment, transport, cleaning and personnel. The facility manager would have to keep within these limits. It was not in the power of the facility manager to freely allocate resources. If for example one item showed under-use, it would be desirable to transfer the surplus to extra staff, but they were not allowed to do this.

Goals, priorities and decision making power

Imperative for management is planning, i.e. defining goals, success-criteria a.s.o. as described in chapter 2. Although a rational planning model is debated and other factors have to be considered, the basic principles still can form a starting point for evaluating the facility management. In a planning hierarchy, the strategies and objectives on higher levels are more general and when it comes to District (PAWC) and Sub-District (CoCT-local) they get elaborated and made operational. PAWC had their “Operational plan” with Key Performance Areas (appendix E) and within each area, objectives were developed. Finance, Procurement, HRM (staff management) and Quality of care were headlines in the overall plans. CoCT had a “Health Services Business Plan” with the Health Directorates Strategy, Key Challenges and Priorities (appendix I). A detailed system of targets, indicators and ‘baselines’ for measuring achievements or decline in targets was developed.

The facility builds on the operational plans from District / Sub-District. For the manager to work out plans at facility level with the staff together was not usual. This kind of planning was made by superiors including how to measure the achievements made by each facility towards these goals (success criteria). The achievements were measured in percentage increase of an established ‘baseline’. Regular meetings were held in Area and Sub-District, where the facility managers met with their superiors and the actual situation was discussed, but the facility managers did not think they had any influence or power in the setting of goals or evaluation of results.
(...) I would say that, you know in this meeting where we were told that we were supposed to do the TB, HIV and preventive care, we were not heard. We were just told that we would do it. Don’t send the patient away; don’t send the patient to the clinic. You are going to do that TB investigation, you are going to do the VCT/HIV, you are going to do the PAP smear, yea… (facility manager about planning).

When we compare the actual working and managerial situation for the facility manager with the organizational theory and discourse, we have to ask: What is management in practice for the facility manager? To manage you need to know your responsibilities, what is your main task/business, what are the resources at your disposal and you will have to decide what are your priorities. The facility had the option to add its own goals and priorities, but there was actually little room for the facility manager to add anything, as the job to meet the requirements of what was already there was detailed and heavy enough. Constraints in terms of lack of personnel and money to meet their challenges could not be changed by referring to statistics that showed increase in workload etc. In this sense the data collection and available information was of little relevance to the manager as use of it would not lead to change. A manager described the situation from managers’ meeting where they would have the chance to bring up things:

...with the stats and the figures, I mean, there are lot of people that are continuously saying that they haven’t got enough staff and they have got the figures there, to prove it, but they say that they cannot do anything about that, so the stats and the staff, you don’t have to mention any more. So, it doesn’t matter if your stats double – you are not going to get any more staff. (facility manager about use of information).

I asked how they would like to have the full responsibility for finance and services. This was apparently an alien thought to begin with and the immediate answer was ‘no’. After reflecting about what this would imply, they were however eager to imagine how it would be like and brought up conditions that needed to be present for this to work properly. I also asked what they would want to do if there was more money at their disposal, for example change or add priorities:

I think we would add, but some of our priorities, for instance TB - is a big problem in the Western Cape, as you will have found out by now. So it would definitely stay priority. HIV and MTCT will stay priority, but we would perhaps just give more money for it. Something we would give more money to is to get more staff, and to get more ways of building up our staff - team building you know - build up staff moral. There is not enough money for that and it is very important. (...) Those that are STI are constantly on the edge of being burned out.

If we had more money then we can do more projects, you know. More money, you get more staff, you can do projects in the community (….) , but now, just being a few staff members, you can’t still go and say, like we are going to plan a teenager pregnancy day or something like that, because we don’t have the staff, we don’t have the time to do it  (facility manager about planning).

Another improvement mentioned by one manager was a staff relieve pool, say for the district, when a sister go on maternity leave, and not only for nursing staff, but for all the categories. This would indeed been a smart way of utilizing resources and help out in the facilities.

Let’s face it. Those two things would enhance the services considerably [money and staff]. You could do so much more. You would be able to go out to the community, like we used to do in the old days, and reach more people. This is very little of that done now, because they…(...) We’re supposed to do life birth visits. They expect us
to do birth visits, and we do some birth visits and we do TB visits. TB is still priority, thus we still do TB visits, if we need to report people and that sort of things. That, we have to find time for. Yea, that we still do (facility manager about planning).

Budget for the facility was set by Sub-District where they also kept the books. Facility manager got monthly printouts of the books to control whether they kept the spending within the budget. If it looked like they were going to overspend somewhere, it would be highlighted in the printouts and this would inform them.

No, it comes, it is a top - down approach and you have little, very little - you get your budget print out, everything is allocated. You just have to work with it. (………) I don’t know how we’ll work like that – because you have to phone patients, but anyway, that’s what they say is going to happen. If there is no money, there is no money, and if you have overspent, that’s it (facility managers about budget).

Dr. Thoms [Director of Health, LA]; we have to take all our orders from him. So, he was the one that said, clinics got to be open until, until half past four, every day. (…) they don’t really; they don’t really give you enough. You can’t use your own initiative. You always got to get permission for this or that or other things, you know, and, yea, certain things (……) I mean, they might as well, sometimes I think, they might as well hire an admin assistant, to do all the admin, and of course, it does have to be somebody that controls and, you know,… to see that everything is all right (facility manager about management and decision making power).

In work practice this means that the facility manager is not a ‘real’ manager. The decision making authority lies with the higher management authorities.

### 6.6.2 Patient management

The health facilities in PHC are responsible for rendering health services to all the population. The goal is to deliver quality care to all citizens, efficiently and in a caring environment (Department of Health 1997). Local knowledge about the catchments area is important for the facility manager to reach out to the population, and in following up the patients and their family. The fact that people could visit any clinic they wanted, even if they did not live in the catchments area, made it difficult to plan. The people had to be taken care of and could not be sent away. A mother may leave her child by the grandmother in a remote part of the city, while she is at work, and then the grandmother will take the baby to the nearest clinic for immunisation and weighing for example. This made it difficult to know exactly how many people live in your catchments area, and also to keep track of your patients.

Not everybody did however come to the PHC facilities and the facility had to cooperate with the community to bring information about their services to the people and to get knowledge about the people in the community. Information to teenagers to prevent teenager pregnancy, HIV/AIDS counselling, the importance of immunisation, nutrition and more general life skills were distributed in the community in different ways. The health educators were important informants for bringing information to the families and back to the facility. A way of bringing information to the population was also to do projects in the community. One facility participated on a community faith on a Saturday. There they had a table, took blood pressure and informed about HIV-testing, immunisation, diabetes and more. Cooperation with school health was also important to follow up the children. Often children had not completed their immunisation programme and the facility manager would try to get hold of them even if they were older, to do the immunisation.
The managers showed in many ways how they knew and cared for their patients, and gave different examples of how they kept surveillance of their neighbourhood, organized and followed up treatment of children and their families.

Yes, the curative rate is, there is more children being seen curatively than immunisation, and we trying, I mean I did immunisation myself now a couple of times, and I do the recourse. I, if there is a child coming in, even if it is seven or eight and it doesn’t have its final. ( ) or whatever, they send them back to me, and we immunise them. But still the preventive care is not, it’s not enough. So we have to work more on the preventative side. The one is the immunisation coverage. That I am really working very hard on; to, to do the recourse for the people that is late. We use the immunisation registers, this one, ( ) they still go into the register, ( ......) ..they can tell you, if you go in, it tells, each immunisation go into the ( ) and register, so it shows what is done and so on. ( ......). I can see which children was supposed to be here this month. If they didn’t come, I can really, really ( . ).

(facility manager about patient management)

All the managers interviewed were clearly aware of their responsibilities and concerned about their patients and families, and the community for which they were responsible. Information needs for patient management would be covered by different tools for following the single patient (very often the whole family) and also patient groups. There were needs for example to ensure that children’s immunisation program was followed up, in the case of malnutrition, mother and child were followed up weekly; or by positive TB and/or HIV/AIDS that the patients came for medicine and follow-up tests. The patient folders in the facilities had information about the patients that came in and the clinics with PFA implemented would also have an electronic patient folder. Baby feeding and nutrition is an important part of the mother and child programme and the ‘assessment measurements form’ was used to follow the development (see Section 6.8, table 6.4). These forms were kept in the patient folders and checked weekly.

Photo 6.5  Patient Folder
Families would come with their babies for immunisation and weighing. Normally HIV tests were taken on babies when they were 9 months. One manager said that if the tests were positive, they very often did not see them again. To be able to change this and to follow up the baby, a new strategy was tried out by one of my visits. A baby, whose parents and siblings were all HIV positive, was there for trying out a special kind of test at 2 months’ age. With this initiative they hoped to be able to follow up the child better. The ‘caring environment’ was clearly demonstrated in this case: At the end of the consultation the mother was exhausted, but was supposed to go back to work. The facility manager called her employer for her, and told that she would have to be with her baby for the rest of the day.

Another example was a young girl who came in with her father. She had been hospitalized for a while and came for blood test. Her record was not complete, but her father did not know much about it and could not give any information on request. Sister (i.e. the manager in this case) asked him to send his wife to visit her in the facility to get the missing information.

Most of the facilities would have more patients on one day than they were able to manage and different solutions were used to cope with this: In one clinic the patients had to make an appointment the day before, or if they came in without an appointment and wanted to be seen on that particular day, they had to wait and see if they could come in between. At another facility you had to be registered before 9 AM the same day. Yet another strategy was to close for a couple of hours in the middle of the day, to be able to cope with the patients already in the waiting rooms. Only one facility practiced no appointments and did not close during the day. Thus the waiting rooms were filled up – and emptied at different times during the day, and where the patients needed to be seen by more than one nurse/doctor, they would have to spend a lot of time in the clinic.

Most of these examples of acquiring local knowledge, cooperation with community, patient treatment and following-up would not be covered by or be visible in the formal routine information system, but were important in the preventive, promotive and curative health services and would at times fill a greater part of the working day.

Reality is difficult to register. Nurses are doing several things at the same time…

(facility manager comment in a Waiting Time Survey meeting)

6.6.3 Staff

Personnel are the most important asset in a service organization. In the operational plans for both health administrations this was acknowledged and mirrored in the goals and targets. In the PAWC “Operational Plan 2003 – Tygerberg Eastern District, the ‘Introduction’ says:

To provide sustainable, quality care to the communities, they will ensure the quality of clinical care by implementing standards, training staff, and monitoring patient complaints and patient satisfaction questionnaires.

They will ensure productive staff by caring for the carer, teambuilding and having plans in place to address organizational factors influencing work motivation.

In this plan “Human Resource Management (HRM)” was one of the Key Performance Areas, and there were the following objectives:

- To ensure productive and motivated staff by addressing organizational factors influencing work motivation
- Promoting the development of staff
• Teambuilding
• Promotion of the development of skills including multi-skills
• Promotion of productivity
• Improving communication
• To improve Labour Relations by empowering Facility Managers and Supervisors to manage labour issues adequately.

The City Health Directorate business plan 2003 had (among others) as strategic objectives:

• Improve internal communication and staff morale
• Ensure the development and upskilling of employees.

The reality for the facility managers made it however difficult to work towards these goals and objectives. In two of the clinics all staff but for the manager was on contract (LA), and by the time of my fieldwork they were told that they had no guarantee for a renewal. Many of them had been working in this facility for more than 2 years. One of the clinics had been told from superiors that there would be a cut in staff, but that this was not to affect the services. They did not quite understand how that could be.

How do you motivate people who do not know if they have a job next month? (…) the contracts ends the end of December, (…). Now, how do you motivate people who don’t even know whether they have got a job after December. You know, that they can be told the day before they’re going to go that, “Sorry, we don’t need you from tomorrow”. And to me this is quite unacceptable. I, I just feel, they should at least get a month’s notice then. (facility manager about staff management).

I was by people higher in the hierarchy told that there was currently a policy in the city that permanent appointments could not be made. The impression was that there was a general experience among facility managers of not being informed or included in decisions that were important for the management of staff in the facilities. Still they seemed to do their work stoically, and despite this insecurity for the future they did the day to day work.

Oh yes, definitely, definitely, and I think everybody is, even the contract workers. They are, if I talk about here, they are giving of their best, but if you talk about trying to motivate for a program in the new year or whatever, they can’t have the interest. They just say: “we don’t know if we’re going to be there (facility manager about staff management).

In addition to this difficult situation of motivating and building teams, there was a shortage in staff. The manager very often had to help out as nurse ‘everywhere’ in the clinic, which gave less time for administration and management, and they constantly felt that they were not able to do enough. When additional tasks, like ARV treatment, were added to the services, the facilities did not get more staff. Some of the nurses also had to go to courses to learn this new treatment without any extra staff to step in for them. The ‘burned out’ syndrome, well known in western countries, was clearly present here in the PHC as well and was mentioned by the managers.

The lack of decision making power, and the clear experience of not being in charge when it comes to crucial decisions regarding the staff management, was an extra burden for the managers. This part of the manager’s responsibility was mentioned by all the managers I interviewed. Competent and motivated staff was seen as very important to run the facilities and to cope with the challenges they were facing. All the managers had qualified opinions on what was needed to recruit and motivate staff, only they did not feel they had a say in
important decisions. In addition to long term contracts, ways of “boosting the moral” and give
the staff some appreciation was something the managers would like to be able to offer.

It would be nice if there was a relieve pool, say for the district; because we do not
get any relieve, and for the next 6 months, the first 6 months next year, we are
permanently going to have sisters on maternity leave, its 3 that has to deliver now,
one that does now. So we do not have any relieve, nothing. We would like a relieve
pool. We had one previously for the Family Planning Department and it worked
wonderful. Now, a relieve pool, not just for nursing staff, but for all the categories.

(….) instead of more staff, more ways of boosting the moral. You know, if we could,
if there was a type of a in., not an incentive, but I could say: ok, you could have half
day off, per month. Half a day; it would do so much! But we are not allowed to, (…) (facility manager about staff management).

In the quarterly evaluation of the goals and objectives in Operational plans (PAWC –
Tygerberg East – appendix 8) for example, reasons (constraints/obstacles) for not following
up of the goal of “Promoting the development of staff” and “Teambuilding”, was referred to
as “reduced capacity” and “Inadequate competencies”. Thus the objectives of “ensure
productive staff by caring for the carer” became more something to wish for than a part of an
operational plan.

6.6.4 Feedback

In running the facility and providing PHC, feedback on performance is essential both in
general management and information management. For training and acquiring of new
knowledge feedback is also important. This is emphasized both by the health authorities and
in the information system development.

Emphasis will be placed on the use and feedback of data at all levels, especially at
the point of collection (Department of Health 1997, 6.2.1 (e))

The following principles were contained in the NHISSA guidelines:

The Data Flow Guidelines below are based on four principles:

Reciprocity between the provider and recipient – Reception of data to be followed by
feedback. In practice, this means that enforceable deadlines for feedback are as
important as submission deadlines.

Issues of data quality and completeness must be handled and resolved at the facility
and sub-district levels to facilitate sustainability – district, provincial and national
managers should refer any quality/completeness issues back to those levels. In
practice, this means that the facility and sub-district levels – where data is generated
and/or captured – need more time than district/provincial levels, where data already
validated can be passed on quickly (NHISSA Committee – Data flow policy).

Feedback and supervision are two sides of a coin and supervision is institutionalized in the
guidelines for the PHC District. A “Clinic Supervisor Manual” with a “Clinic Managers
Checklist” is provided, and detailed descriptions are given as to what to check and follow up.

Experience and thoughts about feedback were different when I asked the managers about it. A
strict monthly/quarterly schedule regulated the submission and feedback in the information
management organizations and the information managers had graphs and statistic forms in
mind, like the “CHSO Submission Rate” (figure 6.3), a form that will tell if the facility has
submitted their RMR in time, different kind of headcount and coverage according to targets.
These types of feedback, meant as a support in planning and decision making, were seen more as control than help and support by the facility managers, but at the same time the managers expressed the wish to have more feedback in terms of graphs than in lists of numbers.

It would be easier if, instead of, as you said, giving us the ( ), the ability, and our Health Information Officer, to do it on graphs. If they do, for each clinic, your ( ) distribution, the main goals that we have to achieve, are graphs like this, per month, it would be more easy, as you say, visible. It will be more impact for the staff, because you can show: Look, this is where we are now. We have to work a bit, because we have dropped this month, or whatever. It would be more easier to get, instead of having it this way, because you have to sit and look: Did I now really drop or didn’t I drop. What did now happen here? So it is not always so easy to see on this what you - and honestly, I think very few of us have the time to make the graphs for everything

(facility manager about feedback on data collection)

The facility managers first referred to these forms when I asked about feedback. When I repeated the question and included feedback on performance in the facility, this was also understood as control and critique. Feedback in terms of support and discussion seemed not to come to their mind, but on reflection there were also examples of positive feedback given.

We don’t get feedback every month on our stats, no. They just check it, and see if it is correct and certain indicators that they look at, and then check it and say that it’s fine, but you don’t get feedback on it. (......) No, they’ll only say, for example, if they notice that you haven’t got any, say contraceptive users under 18 or whatever, they will say, you know, they will ask you maybe why. So they will question things, or they’ll say you haven’t been doing enough PAPs or that kind of things, but otherwise you don’t get anything. So I suppose, if it is something that stands out, that this clinic is not doing any PAPs or this clinic is not doing anything, they will come back to you and say: Look according to your stats, for 3 months, you haven’t done so and so, that kind of thing, if that is what you mean by feedback.

Yes, well, I suppose that you don’t usually hear about those things, you know, they don’t, eh, I tell you what, (....), because we did get feedback on the ( .. ), the Depo and the Nuristerate. Now that is one thing we did get feedback on. Dr. Thoms has asked that we changed – you know the Depo and the Nuristerate It is the family planning injections. The one’s at 2 months and the one’s at 3 months. And he asked if we could, please, try to get everybody from the 2 months to the 3 months, so we had to ( ...... ), and they did give us feedback that they were absolutely stunned at the way that we have done it, that ( . ) at the clinics, that the number of the 2 months have reduced considerably, so we got feedback on that, and it was a positive feedback

(facility managers about feedback).

The facilities were supposed to have a monthly supervisory visit and the supervisor had in his/her manual different forms with checkpoints to fill in. Following up data collection, display of statistics in clinic and operational plans were part of the supervisor’s job. As an example of supervision, one of the facility managers referred to unannounced visits form superiors where their work would be controlled:

……and we have audits and all that sort of things. We have audits from the, the sister that is the, that does all the education. She and sometimes the area manager will come around, and they don’t tell you when they are coming, and they will come and they will do audits, and they will go through, just pick up cards at random and all that..

(facility manager about supervision).
While the managers one the one hand expressed the feeling of being controlled more than having supervision, they also wanted to have more visits by supervisors as well as they would welcome visits by higher management more often. Feedback on performance seemed only to come when they did not succeed.

We would love Management to come down to ground level; then come to the Centers more often. You know that also does a thing to the staff. We see them at the end of the year, then they come and wish everybody Happy Christmas; but it’s not enough. Just some appreciation from them, that, that would be very nice. (...) As is now, the staff, if the Manager comes in here, the first that comes to your mind: What is wrong now... (facility manager about supervision and feedback).

In the discourse and discussion of IS and use of information, it is repeatedly emphasized the importance of seeing IS in context. When talking about feedback on data collection and statistics, it is important to see the feedback in relation to the working situation of the facility and how they actually will be able to use this feedback. Graphs and calculations sent them from higher levels are used and also felt as control. It is a measurement of your work - in numbers - numbers that they often felt did not mirror their working reality. This is also confirmed in a HISP local evaluation of the DHIS software package in Cape Town.

Any feedback given by supervisors regarding the ‘stats’ is almost always negative, i.e. why is the data submitted wrong, why is data submitted to late etc. This reinforces the negative view regarding health information (Stoops 2000, p. 40).

Feedback in terms of statistics compiled from the RMR: lists and some graphs did sometimes not seem meaningful as the challenges were so obvious:

I do not need numbers to know what the major challenges are.

(facility manager about feedback)

This statement may be understood as had the manager no understanding or interest in information and the use of it. To me it expressed a confidence in her knowledge about challenges in the catchments area and competence in using this knowledge.

6.6.5 Training

In all kinds of skills and knowledge acquirement, training is an important factor. Most of the facility managers had followed different courses in health care and health management. Management had either been part of “Community Health training” (at the Technikon, CT) or as a “Nursing Management” course (at UWC). This kind of knowledge was followed up by practice in the working situation. Training is also often mentioned as important for understanding and using information from all actors and levels in the introduction of information systems and is seen as one of the key components in the rollout of DHIS:

Systematic training of managers at all levels, from the facility and up to national, in how to turn data into information and the use it for action (interventions) and monitoring (societal trends as wee as impact of past interventions) (RHINO 2003, p. 100).

Formal training comprised two types of course. A one-week, Introduction to Information Management course, presented at the PHP UWC summer/winter school, was targeted at mid-level managers. An evaluation of this course found that while the course was perceived as useful and beneficial, the need for ongoing training and support was highlighted (Shung King 1997 in Williamson 2000, p. 9).
When you attend to courses, the chance to practice at work afterwards is very important; otherwise the skills learned will quickly decline. Experiences from courses held in Cape Town tell that lack of computers, heavy workload and staff shortages are among the constraints to implementation of skills learned (Williamson 2000). A certificate course, “Introduction to Information Management”, targeted at facility based health workers, was introduced by HISP in Cape Town in response to an increased demand for district-based training (Williamson 2000). This course was evaluated by a HISP local researcher:

The stated aim of training, to empower facility and district staff to use locally generated information to improve coverage and quality of primary health care services, has proved to be unrealistic and over ambitious. HISP training is regarded as a vertical programme, rather than a support process, as extra work, not streamlining of current work processes (Williamson 2000, p. 35).

As the conditions were different in PAWC and LA this also had consequences for the opportunity to go to courses and training. One LA facility manager pointed to the lack of money for courses, and that they might have to pay for the courses personally:

We ask quite a bit for training, for our managers, and as it, there is not, there is very few courses that was ever bin, they tried to do a bit of in-service thing for the managers, it was just for a day. Unfortunately, they arranged when I was on leave, [laughter] wonderful! But that was then almost all that was arranged. There is other courses, but, I mean, there is one that they want us to look at, it’s benchmarking, more than 2 or 3000 Rand for a week or 2 week course. There is not a chance that the Council will send us for that, because there is not money. And I think very few of us can afford [laughing] 2 to 3000 for a week course, so, it, it put us out of, eh, eh, contention for that course, you can’t do that. But there is courses that people can do on their own, part time courses. There is public management, two of our (. ) sisters at (...) is doing it now for two years. I am thinking of doing the admin course through, the nursing admin course, through UWC, but I still have to think of, because the financial bit is the big obstacle. You have to do it on your own, but that’s part time (...) (facility manager about training and courses).

6.7 Data collection and information flow

Data collection in the facility followed the patient from their arrival, where they registered in the reception, to their leaving after consultation and/or treatment. Depending on the size of the facility and the type of services rendered, the data collection varied in the facilities visited. Generally every patient had a personal card, or if the patient was new in the facility, a new one would be made. This card was handed to the receptionist by arrival. A patient folder would contain all information about this patient and be kept in a filing system. A small index-card was also created and kept as a backup in the reception. Figure 6.4 shows the ‘patient treatment flow’ through a combined facility:
Figure 6.6 Patient treatment and data collection process through one facility (combined)

The reception kept day register forms, where each patient would be registered and counted by folder number. A medium sized facility did headcount in the reception and at each station in the facility they had a tally sheet, so that the number of patients and type of treatment would be ticked/counted anonymously, while another did headcount only in the reception. Yet another counted in the reception, and in the stations they counted only ‘family planning’ < 18 years, and curative treatment < 5.

Photo 6.6 Patient folders in reception
<table>
<thead>
<tr>
<th>Folder Nr.</th>
<th>Folder Nr.</th>
<th>Folder Nr.</th>
<th>Folder Nr.</th>
<th>Folder Nr.</th>
<th>Folder Nr.</th>
<th>Folder Nr.</th>
<th>Folder Nr.</th>
<th>Folder Nr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>032304</td>
<td>31</td>
<td>20526</td>
<td>61</td>
<td>94443</td>
<td>81</td>
<td>30872</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>982891</td>
<td>32</td>
<td>201752</td>
<td>62</td>
<td>93071</td>
<td>82</td>
<td>30172</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>211752</td>
<td>33</td>
<td>201335</td>
<td>63</td>
<td>93702</td>
<td>83</td>
<td>30172</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1980279</td>
<td>34</td>
<td>900925</td>
<td>64</td>
<td>92233</td>
<td>84</td>
<td>30172</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>211955</td>
<td>35</td>
<td>033425</td>
<td>65</td>
<td>92555</td>
<td>85</td>
<td>30172</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>092256</td>
<td>36</td>
<td>201193</td>
<td>66</td>
<td>92942</td>
<td>86</td>
<td>30172</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>033750</td>
<td>37</td>
<td>032725</td>
<td>67</td>
<td>92942</td>
<td>87</td>
<td>30172</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>030267</td>
<td>38</td>
<td>032660</td>
<td>68</td>
<td>92942</td>
<td>88</td>
<td>30172</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>022581</td>
<td>39</td>
<td>024223</td>
<td>69</td>
<td>031</td>
<td>89</td>
<td>30172</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>201120</td>
<td>40</td>
<td>96256</td>
<td>70</td>
<td>023</td>
<td>90</td>
<td>30172</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>032652</td>
<td>41</td>
<td>032652</td>
<td>71</td>
<td>201120</td>
<td>91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>972657</td>
<td>42</td>
<td>980489</td>
<td>72</td>
<td>201120</td>
<td>92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>204000</td>
<td>43</td>
<td>03034208</td>
<td>73</td>
<td>972657</td>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>952761</td>
<td>44</td>
<td>031972</td>
<td>74</td>
<td>972657</td>
<td>94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>20495</td>
<td>45</td>
<td>033334</td>
<td>75</td>
<td>972657</td>
<td>95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>990413</td>
<td>46</td>
<td>984324</td>
<td>76</td>
<td>972657</td>
<td>96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>965139</td>
<td>47</td>
<td>992100</td>
<td>77</td>
<td>972657</td>
<td>97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>023556</td>
<td>48</td>
<td>971528</td>
<td>78</td>
<td>972657</td>
<td>98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>093862</td>
<td>49</td>
<td>023736</td>
<td>79</td>
<td>972657</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>003389</td>
<td>50</td>
<td>032086</td>
<td>80</td>
<td>972657</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>972181</td>
<td>51</td>
<td>971184</td>
<td>81</td>
<td>972657</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>990413</td>
<td>52</td>
<td>034206</td>
<td>82</td>
<td>972657</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>990126</td>
<td>53</td>
<td>994413</td>
<td>83</td>
<td>972657</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>970936</td>
<td>54</td>
<td>970936</td>
<td>84</td>
<td>972657</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This was all paper-based. By the end of the day the registered data would be entered into a computer system, if a computer was available. As described in Section 6.2, TB had a separate program and a separate information system. The TB patients who came in for DOT’s, brought their personal cards directly to the nurse in charge who marked their visit there. TB coordinators worked in the facilities and took care of the treatment, statistics and follow-up of patients to take their medication. The new TB reporting system had, like many of the changes, been presented very abruptly and the TB module in DHIS abandoned, as also in the PFA.

The patients did not always remember to bring their card, and would then get a new one. If the patient came from another geographic area, it might be possible to require the patient folder from there, but if the patient moved around, it often caused loss of the patient’s health history. Also when people were referred from other places, the referral letter was often lost or forgotten. These kinds of situations were mentioned by the managers, who would like to have a patient based information system that could keep track of their patients across district, health service levels and facility boundaries.
The LA and combined facilities with computers working had the PFA installed, and thus easy access to information about the patients registered there. The computers were in the reception and if for example a doctor or nurse needed to look up information, she/he had to leave the office and go there. The question of computers at the different stations had been discussed in bigger facilities, but this was said not yet to be on the priority lists.

The monthly RMR was submitted in different ways; by fax, electronically from DHIS or one did the statistics on a spreadsheet, a kind of copy of the RMR and sent it by e-mail to the District Information Office. The facility without computer and fax had to send somebody physically to the head office and enter the data in the computer there. Some facilities did not have computers, or DHIS, or the computer skills and training in using this particular software. The importance of this information transfer was however not questioned by the facility managers, but seemed to have limited value for them, or they would like to have the statistics and graphs more tailored to their facility and local needs - and more often. It was however also seen as a question of what to count and what to leave out. Standardization in terms of the minimum data set in DHIS was not seen by the managers as a tool to measure the actual work practice and workload in the facility. The facility managers mentioned many tasks that did not ‘qualify’ for counting, like consultations by phone (could take half the day), pap-smears more often than prescribed (i.e. only at 30, 40 and 50 years), participation in community projects and more.

Table 6.6 lists different reports/forms had to be submitted monthly or quarterly from the facility:
<table>
<thead>
<tr>
<th>Province (PAWC)</th>
<th>Local Authorities (LA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMR</td>
<td>RMR</td>
</tr>
<tr>
<td>TB</td>
<td>TB</td>
</tr>
<tr>
<td>Immunisation</td>
<td>Immunisations</td>
</tr>
<tr>
<td>Notifiable diseases</td>
<td>Notifiable diseases</td>
</tr>
<tr>
<td>HIV/STI</td>
<td>HIV/STI</td>
</tr>
<tr>
<td>Mental health</td>
<td>Nutrition</td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
</tr>
<tr>
<td>Drug Management</td>
<td></td>
</tr>
<tr>
<td>Home based care (community health workers)</td>
<td>Home based care</td>
</tr>
</tbody>
</table>

**Table 6.5 Some forms facilities submit monthly from PAWC and LA facilities**

Other forms to be submitted from the facility were a ‘disciplinary form’ (appendix 16) related to staff management and a ‘compliments and complaints’ form; introduced to measure quality of care by registering complaints and compliments from the patients (appendix 15). Environmental health, oral health and school health was not managed by the facilities but something the managers used to be informed about through different kinds of cooperation.

In addition to this routine data collection, I was told and shown several examples of non-routine data collection and use. Some of them are already mentioned above and in the Section 6.6.3, Patient Management. In one clinic they were concerned about their diabetic patients and followed them closely over time. By following up this group with diet and training, they could measure results in improved health for the patients and less need for medication.

Yes, we, what we’ve done is; say now with diabetes: you know, we counted how many, more or less, how many diabetic patients we have, and we have a lot of diabetic patients; and then we had a diabetic clinic, and you know, also a diet club, where at the same club these people are being advised how to loose weight, and exercises; that was last year, but because of the shortage of staff this year, we didn’t have that project going ( . )

We saw that 2 or 3 of our clients, who came there, they really did have lost weight, and they were also diabetic patients ( … ). And of course we give them a diet sheet to see that they can get a diabetes control, and we have a health educator here, so, you have a health educator; she comes in once a week, and she sees patients individually and she gives them intense health education on diet, exercises, rest, you know, like ( … . ) (facility manager data collection and use).

The cooperation with MSF on statistics for TB/HIV/VCT is another example of data collection that existed parallel with the DHIS and PFA. There were problems in registering because the facility and MSF used different forms. MSF had looked at the RMR-form but did not find it suitable for their use. They were looking for a possible integration of data collection.

It is a main impression that local, non-routine information was seen as valuable. In my interviews, when talking about data-collection and information, the managers used the word
‘they’ when talking about routine data and statistics that they had to submit to higher levels, while ‘we’ or ‘I’ was used when talking about local data-collection and information use.

You see, what we do in each room, (…) we know more or less how much we see per day and what type of patients there is. Now, in the preparation room, (…) what we have done there, in the dressing room, we have noticed that, the winter months, the dressing will go up, there will be more people coming during winter for dressings, probably because of the fires and burns and, you know, we have lots of burn wounds in winter, yea. (facility manager about data collection)

6.8 Use of information

Formal routine information

The anonymous data were collected and added up, daily, weekly and monthly by staff, clerk(s) or facility manager. Every facility was supposed to have a person responsible for the data collection and submission, and this was mostly the facility manager. I asked the managers if they calculated and/or used the statistic data before submitting to higher level, but this was mostly not the case. This was mentioned as something they would like to do by the managers, but when they did not do it, it was seen as a matter of heavy workload and tight schedule.

The data were checked before submitted, but they were waiting for feedback from the information manager at Sub-District or Area before assessing the numbers. I asked about business plans, goals and targets at facility level and if they could see a possibility to use the information in this. Although the feedback in terms of numbers and some graphs was not seen an important tool for managing the facility, they also gave examples of use:

M: We have to get our immunisation rate up. Because we are, there is too many sick children in this area. We work ..

I: How do you know?
M: you can see it on the stats
I: Yes, so you do use the stats?
M: yes, the curative rates, there is more children being seen curatively, than immunisation and we trying, I mean…
I: Do you make your own local business plan with objects, targets - this is what we want to do to reach our targets and things like that?
M: We have done, for example, we – one time we wanted to increase our PAPs, so we said we must do so many PAPs a week, kind of thing, but now, you know with the PAPs, the PAP story is, that we can’t do as many as we like. We are only allowed to do one every 10 years for a patient. 30, 40 and 50 years, this has been the government rule for the last, (…). Whereas before, (…) we used to do PAPs every year on people. Now, we advise them to go privately in between, because we feel that 10 years is a long time. (…) So, although if we would like to have – like to increase our PAPs, we can only do a limited number, ok, so yeah..

(facility managers about use of information for planning)

In the last case about the PAP smears, although the facility had information about patients and used their professional judgement for what they saw as good quality health care, they were not allowed to use this information. ‘Stats’ – the word was very often spoken in a negative
voice – and it was related to the reporting needed for higher authorities. When I tried to find out more about their attitude towards information and use, the picture got more nuances. Statistics were displayed on walls in the offices and in corridors and waiting rooms to inform both staff and visitors.

Photo 6.10  Cure Rate statistics displayed on the wall in facility

Photo 6.11  White board with statistics in facility
You could sense ambivalence in their attitude towards data collection and information use. When I asked about the fact that people from all over town could pop in everywhere and what it did to the statistics, it turned out that one of the facilities actually had done their own survey on this. This need for info had led to their local data collection.

M: mm, what would be quite interesting, and I wouldn’t mind having a thing on here, is so, whether they are in the area or out of the area, even if you didn’t say which area they belong to. We actually have done that ourselves from time to time. We’ve done a survey ourselves, just to see how many, and we find that the majority of them are actually, a bigger number are out of the area that in the area. Yea, so we just done that survey for ourselves (facility manager about headcount).

At the same time this manager would say:

I don’t like ‘stats’ – unlike you, that love ‘stats’. I don’t like ‘stats’. But, you know, it’s nice to, by the end of the day, to look and see certain interesting things. But while I’m working, I don’t like ‘stats’, if you know what I mean? (facility manager about data collection)

Another manager mentioned the need for information to supply the statistics that they received as feedback. She had asked her husband to make monthly graphs for her at his computer at home to be able to follow the headcount and cure rates. White boards in the facility were used to inform the staff of the current situation, both the financial side and how they were doing with cure rates related to targets/indicators.

The TB programme with data collection and statistic feedback is also something often mentioned by the managers as useful to increase the cure rates.

M: We have the TB coordinator, that, each Area had one, and she compiles this and she feed this to National, because National is giving the money for the TB patients.

I: So that comes separate.
M: That’s right, and the reason why we had it this way, because we was not winning with TB. It’s a bit better now. The success and cure rate is 82 – 83 at this stage, so we doing much better (facility manager about information use).

In the example with the MSF cooperation, the use of information was seen as very important for the quality of care that they were able to offer their HIV/AIDS patients. This was routine information for these particular patients, only this was not a part of DHIS and thus not visible in the regular monthly evaluations.

As most of the managers had to work as nurse in the facility, there was little time for administrative work. For some time, they were allowed to take the last Friday every month for meetings, administration, data reporting etc., but for a 6 months period this had been taken away from them, with the result that the statistics suffered. This was now reversed. It is difficult to concentrate on planning and administration when you are continuously being interrupted by patients coming in.

There was a discussion between local managers, information managers and researchers whether the workload was too heavy or just a matter of organizing the work better. A formal but not routine data collection was the “Waiting Time Survey” performed by the LA and researchers together during Summer-Autumn 2003. This aimed at recognizing bottlenecks in the facility, but this was felt as an offence by the health workers, who worked hard most of
the day to cope with the workload. Although it was said that this survey was made on the facility managers’ request, my immediate impression was that the managers felt alienated to the survey and its result when they were presented to them in a meeting. They showed little attention to the information given from the researchers and administrators and only asked questions or were engaged when they felt that the results gave a biased picture of what they were doing in the facility.

The TALI Tool

In the NHISSA and HISIP project, use of information was strictly related to formal routine information and a tool for evaluation of information usage was developed in 2002, called the TALI Tool. The name was said to be a play with words: ‘Tool-Assessment-Levels-Information’ = TALI with association to the ‘tally’ sheets used for headcount. The tool was meant as a self-assessment tool for managers at different managerial levels. A classification of information usage across provinces, district council areas, sub-districts and facilities was developed. Three levels of information use are described and the aim was that South Africa as a whole would reach level 3 by the end of 2003. A detailed description is given of how to assess information use at facility level, criteria to be met are described and to what data collection it is referred.

<table>
<thead>
<tr>
<th>Level 1:</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facility:</strong></td>
<td>At least 4 indicators are graphed for the year and up to date for the year and up to last reported month.</td>
<td>At least one problem has been identified and addressed through an action plan.</td>
</tr>
<tr>
<td>Facility has an Essential Dataset defined (or uses that for the District)</td>
<td>At least 1 meeting each quarter in the last 8 months to evaluate the data elements/indicators (at least one meeting each quarter).</td>
<td>The effect of the action has been monitored and can be shown.</td>
</tr>
<tr>
<td>The facility has identified an information manager.</td>
<td></td>
<td>The actions are documented in a written report to the District, the clinic committee, or the annual report.</td>
</tr>
<tr>
<td>Has submitted all of the expected reports in the last year within the period set for the submission of reports (this period may vary from district to district)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The facility information manager has validated 80% of the feedback reports (checked, signed, and sent back to DIO if any errors were noted).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) feedback reports (at a minimum a printout of the data entered into the DHIS for this facility for the last few months – standard report) are received by the facility once data entered into the DHIS within the timeframes set for feedback reports.

Table 6.6 TALI Tool – assessment at facility level

Non-routine information

When the managers talked about the general running of the facility, what they were doing, it turned out that data were collected and information used in many ways as already described, only this was mainly not part of the RMR.
Baby feeding and nutrition is one of the important services in the facilities. To follow up the babies, an **assessment measurements** form was developed for the nutrition programme, and each baby was checked in relation to the successful exit criteria like the ones in table 6.4:

<table>
<thead>
<tr>
<th>Target Groups</th>
<th>Supplement</th>
<th>Pr day</th>
<th>Pr month</th>
<th>Entry criteria</th>
<th>Successful exit criteria</th>
<th>Unsuccessful exit criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 6 months</td>
<td>Pelargon</td>
<td>125 ml</td>
<td>*7</td>
<td>breast-feeding contra-indicated / not possible AND infants growth faltering</td>
<td>normal growth curve attained and maintained for 3 months</td>
<td>&gt;3 months absence at clinic OR &lt; 3 visits/ 6 months OR normal curve not attained over 12 m period</td>
</tr>
</tbody>
</table>

**Table 6.7 Assessment measurements form for baby feeding and nutrition**

This assessment form was used by the consulting nurse the days after. She checked the patients’ folders once a week and looked for progress or considered actions to be taken. The case about the diabetic patients and the diet club is another example of local information use for patient management.

### 6.9 Information culture

In the “Discourse Analysis” chapter I distinguished between the concepts ‘use of information’ and ‘information culture’. ‘Information culture’ was given a wider meaning than ‘use of information’ and was interpreted in the organizational and cultural context where local knowledge, professional and cultural values and decision making authority are important elements, building on the working definition of Zeng (2005):

(…) the general capability, views, norms and rules of behavior, with regard to accessing, understanding and using information in a social collectivity (p. 3).

Translated into the context of the facility management, ‘information culture’ would include local and tacit knowledge, data collection and information use in the health work practice that is not visible in the formal information collection and evaluation process. Power distribution and (lack of) decision making power for the facility manager would also have to be considered when assessing the information culture at facility level. I was looking for these elements in my observations and interviews.

The facility managers accounted for information needs and gave examples of information use and showed positive attitudes towards data collection in many ways – when related to patient management. Data collection and use of information was closely motivated by and related to occupational values and the responsibility for patients took priority. Decision making power and the lack of it became however a key issue when talking about more strategic planning and management.

My approach in the field study was to look for any data collection and information use that was described as useful to the facility managers in their daily work and to try to get a picture of the wider organizational culture and relations to managers at higher levels and information
officers and managers. The field observations showed how the facility kept track of their patients and how they used different (mostly paper-based) methods to collect information, using routine and non-routine methods. I asked about cooperation and information sharing across the organizational levels in the hierarchy – and how the power distribution might influence the use of information for decision making. There was a clear view of a top-down management and power distribution – “we are at the bottom of the feeding chain, you know” (facility manager).

Organizational culture within the facilities, i.e. relations between facility manager and staff seemed to follow up the top-down power distribution in the hierarchy between managers at different levels. Although the managers showed great concern for their staff, as described in Section 6.6.3, they also expressed the need for discipline in staff management:

(...) it is to much stress and you know, you need not to change your personality, but you will have to throw your weight around, you must be sharp, which I refuse to, you must really implement discipline with your colleague staff and that definitely, I don’t want to. (facility manager about staff management)

Facility managers did not discuss business plans, goals and targets in staff meetings, but ‘told’ the staff how things were going and where they had to do better, and statistics were displayed on the walls “so that they can see where we are” not as a basis for discussion and strategic planning. “The managers had their own meetings at the head office, where they get informed, and in staff meetings she will bring the information to us” (clerk). The top – down power distribution affected the goal of participation at all levels. It seemed important to show who were in charge, and meetings with superiors or staff had the status of a place to ‘tell’ more than to discuss the present situation. An organizational culture like this did not promote the ideal of participation.

As an example of “(…) a culture of non-questioning acceptance” (Williamson 2000), the facility managers were poorly informed about my research and intentions. My introduction letter to the facility managers had only been given to one of five facility managers. Approval to contact the facilities and make appointments was mediated through the sub-district /area managers to the information managers.

6.10 The facility manager

I would like more time to be a proper manager. I would like to do – there are certain things that I don’t have time to do – that I would like to do

(facility manager about being a manager).

The position ‘Facility Manager’ is relatively new. The clinics have been there “all the time” but until shortly there was just a ‘Sister in charge’ of the clinic, who was appointed without applying for the job. Senior professional nurses (SPN) with a minimum of 3 years experience were appointed as ‘Sister in charge’. When a post was vacant, the most senior nurse in the facility or region was appointed and/or moved. I asked if there were requirements (education, experience, skills and courses) for being appointed facility manager. Researchers and information managers did not think there were formal requirements.

I don’t think there are any. Only the most senior nurses would be appointed. There might be certain criteria, like a minimum period of time as a SPN, but no education.
Management courses would be beneficial but not required. The Nursing Administration courses that have been given at SOPH and now at the Technikon are purely administrative, not managerial (Researcher HISP – SA).

The managers told however of a change in policy by post vacancies:

Now there is a new thing. If there is a post vacancy, then you go through an interview process, which is very tough, I think, very tough. They will ask you lot of questions, they will sketch some scenarios: “what will you do as a facility manager if this and this and this happens”, you know..

M: I was a clinic sister for quite a number of years before I actually became a manager. When they brought the manager focus in, that’s when I became a manager.

I: the clinics have been here all the time?

M: Oh, yes, but we haven’t had clinic managers. There was always a clinic Sister in Charge, but it wasn’t, it was a, it was just somebody who asked you to be in charge; it wasn’t a designated position.

And then they decided to bring the (.), you know, the salary ( .) and everything and everybody had to go for interviews before you could become a manager. Where, as a clinic sister, you were just anybody, just acted as a clinic sister.

I: mm, but did they have requirements for you to become a manager?

M: Well, it was just a job specification that was set, just a job description, which was more or less what you were doing as a clinic sister anyway. But then they did give us a few extra things which the Area managers used to do, was then given to the clinic managers to do, so yes there is more. I would say there is more administration that is expected from the ( .), and more responsibilities, because now you are, you are definitely responsible for it, because you have got a designated post. So there is more responsibility and (……), but unfortunately I think all the managers feel that, although we are managers, we don’t manage as such (bold added) because we have to be part of the work force

(facility manager about job requirements).

Managerial competence and use of information

Competence is defined as a standardized requirement for an individual to properly perform a specific job. It encompasses a combination of knowledge, skills and behavior utilized to improve performance. Skill, as one aspect of competence is defined as an ability that has been acquired by training. Competence may come from both formal education and work practice. Did the facility managers have managerial skills and/or was it possible to have these skills and not use information for decision making? I found the managerial skills well accounted for as already described.

People I talked to in information management and research claimed that the facility managers lacked the skills and urge or interest for management. It was also claimed that what had been taught in courses about health management so far, at SoPH and Technicon, was purely administrative and not managerial, without further distinguishing the two concepts. This was seen as one of the reasons why information was not used for management.
Knowledge and skill among health workers and managers on how to analyze and use information for management purposes are strikingly poor in most if not all developing countries (Braa 2003, p. 8).

In my interviews I asked the managers to tell about their education and professional experience. I also asked them to describe their managerial responsibilities and their thoughts about being a manager – what it implies. We talked in more depth about planning, patient and staff management, budget and information management.

These managers had from 6 to 16 years of experience in being in charge of clinics and before that many years of professional experience. Some of them had taken courses in management, some not. Education and training in administration and management had been given in Community training while practicing health care (just a “little bit”); Nursing Management Course (1 year) and health management at SoPH and Technikon (1 year).

In their response to my questions, the experience and skills they had acquired became visible. This was expressed in knowledge about their catchments area, the challenges in health care provision, the tasks and responsibilities. They were also well informed about the operational plans, goals and achievements. In staff management, teambuilding and motivation were mentioned as important factors.

Ok, the responsibility at this stage is, of course the facility as a whole, the, the, what you do with your stats; how you interpret for the community and your planning around that. Then it is of course, your finances; you get about it, you have to stay within that budget. That is fairly new for us. We start getting more and more responsibility and being taken, held accountable for the budget of the clinic.

I am here to see that everything is running smoothly; (...) you must see that all your stations; then I mean TB, family planning, whatever, that they are fully staffed, that there is, even if there are 2 or 3 sick, you must see that, all the stations, there is a person, a body that is going to work there. Even if you must put one person into, to cover the 2 stations, you know, that is your main thing; you must see that, to the running of the Centre, and to see that all the stats go in regularly end of the month; the ordering of the stock; see that you are fully equipped with all your instruments and stuff; your staff - make leave list for the year – that they have submitted. I don’t put 4 people on leave in one month. You know, all those things you must see to, are smooth running; and that is just a few of the things that you must really look at. Your budget, that is a main thing ooh..

M: Yes, we do have a specific goals and objectives form for this facility (...) We have an operational plan for the district ...

I: ok, and you can add your own targets if you want?

M: Yes, we, what we’ve done is; say now with diabetes, you know, we counted how many, more or less, how many diabetic patients we have, and we have lot of diabetic patients; and then we had a diabetic clinic, and you know, also a diet club, where at the same club these people are being advised how to loose weight, and exercises. That was last year, but because of the shortage of staff this year, we didn’t have that project going (...) (facility managers about management)
Despite the huge challenges and constraints in managing the facilities that often led to frustration and a feeling of powerlessness, the facility managers interviewed seemed to find their jobs satisfactory and they showed great concern and care for their staff and patients. When they talked about local projects and initiatives, you could sense the pride of what they had achieved. Challenges and change were among motivating factors mentioned by one of the managers, who had applied for transfer from a small clinic where she “had everything worked out nice” to a big one.

As long as the facility manager position is not fully developed, it is difficult to do a fair evaluation of the performance of the facility managers. They were all eager to learn more, and would have loved to have time for courses and up-skilling, it was just not in it for them under the current financial and staffing conditions. I was looking for tools and skills used for analysis. Headcount, coverage and other statistic measurements were understood and used by the managers. The use of DHIS as a tool was actually at the time of my field work, not very relevant, as only few of the facilities run the software. Use of graphs was what the managers wanted the most. They did however also use numbers in tables and various registers (patient folders, immunization register, TB, STI etc.) to keep informed about patients and catchment population. An analysis tool like the simple X - Y axis may be useful, and does not need much of an introduction to be grasped by the facility manager, if she does not already know it. I tried this out by drawing and monitoring the development of headcount for one of the managers, and this was easy to understand for her. This was something she would like to use right away.

My impression was that the facility managers I met were very competent both as professional nurses and as managers; very dedicated and with their heart closest to the patient management. They coped with difficult financial situation, staff shortage, for some also poor housing conditions, organizational change and huge challenges in meeting HIV/AIDS, TB and malnutrition. This impression is also supported in an article in SAHR (2002) where facility managers are said to have a range of skills that they feel equip them to perform their jobs:

- Supervisory and communication skills, educational, research, direct patient care, community outreach, and operational planning and evaluation, are some of the skills that facility managers bring to the job.
- The ability to delegate duties, to set targets and to evaluate and prioritize the demands of the facility level are all regarded as important.
- People management skills, and especially dealing with conflict, are considered to be among the most important aspects of management.
- Training opportunities within the public sector assist managers with their development. (Ljumba 2002, p. 207)
7 Discussion and conclusions

This case study was inspired by the story of HISP in South Africa, its goal of improved health care through the development of a computerized information system, and the emphasis on involvement and empowerment of local health workers. In the discourse of health information systems and HISP there were apparently contradictions in the achievements so far. The HISP goal of “local information for local action” and stories of success were contradicted by claims that information was not used to inform management at local level in PHC. Was HISP and DHIS a success or a failure? The unfolding history and achievements of HISP in its historical, social and political context is not a story to be told in black and white, and I have not taken on the task of a complete evaluation of the HISP project in this thesis.

My contribution will be: (1) to give a broad description of and to discuss work practice and information needs and use in management at health facility level, from the perspective of the facility managers; (2) to conceptualize ‘information culture’ in PHC facility context and discuss whether an information culture exists at this level; (3) methodologically by combining case study and discourse analysis as an approach to generating knowledge in IS research; and (4) to analyse core concepts and themes used in the discourse of health information systems in developing countries, to explore how different ‘realities’ are created in the discourse and ask how this may influence research in the field.

This research is framed by organization theory concerning management, decision making and change in organizations, social psychology in organizations and health information systems development in developing countries. In this chapter I return to and respond to my research questions:

“How is information used to inform decision making and management at facility level?”

“Does an information culture exist at facility level in PHC in Cape Town?”

To gain insights in the working conditions for the facility manager and to study relations between facility management, data collection and information use, an in-depth case study was designed. The discussion is related to the key findings from the observations, interviews and literature review from the case study, and from a discourse analysis. My focus at the beginning of my research was at the routine information provided by DHIS at both district and facility levels. During the field study, focus changed to concentrating primarily on the facility level. As I learned more about the work practice and information needs in the field work, I also extended my focus to including not only the DHIS but all kind of information collected and needed for a facility manager. In the field work process the open character of the interviews and observation made me adapt the topics in the interview guide more to the working situation in the facilities and also to changes in focus.

The rest of the chapter is organized as follows: First, I give a description of the PHC health facility in Cape Town in its political, historical and organizational context and possible implications for introducing DHIS and ICT. Second, I discuss management at facility level, work practice and information needs and use in managing the health facility, from the view of the facility managers. Third, I discuss whether there are evidence of an information culture in
the PHC facilities. Fourth, I discuss key concepts and themes in the HIS in developing
countries discourse and compare these findings with the results from the field work study.
Finally, I discuss the methodological approach and how a qualitative approach and the
combination of case study and discourse analysis has been useful to shed light on the
theoretical and practical aspects of using information for management in the health facility. I
also give some recommendation and suggestions for further research.

7.1 The health facility in Cape Town in context

A social systems approach and the importance of including context in analysis and evaluation
are unquestioned in the literature around health information systems. The success of HIS does
not only depend on technical improvements but also on in-depth understanding of political,
socio-cultural and administrative factors (Lippeveld and Sapirie 2000). The organizational
context of the health facilities in Cape Town had in the last 10 years been through
fundamental change in the structures. Development and implementation of a new HIS and
ICT also implied change at all levels in the organization, and added complexity to this
organizational change.

Important in introducing change is motivation of the work force, as resistance to change is
described as a common observation even when the goals are highly desirable. It is also
emphasized as a possible reason why information systems do not succeed. Amonoo-Lartson et
al (1984) claim that people react from the standpoint of “what’s in it for me?” and it is
therefore important to see changes from the point of view of those who will be affected.

The main reasons for resistance in introducing health information systems given in HIS
literature are related to care providers as people with certain beliefs, attitudes, and practices
that feel threatened by the HIS, and that changing these will take time. It is also pointed to a
lack of mutual understanding between data people and action people in introducing ICT
(Lippeveld 2001). The facility is a core unit both in the PHC delivery and the health data
collection. ‘Good data’ are important in HIS, that is also why the health facility is important,
and to understand how the organizational changes are experienced by the health facility
managers and staff is of great importance.

What kind of changes did the facilities in Cape Town face? The reconstruction and
development program (RDP) and the emphasis on PHC and a district model had great impact
on the situation for the health facilities:

- There were changes in the administrative structures in establishing the district health
  system. The long-term goal of merging the health services from provincial and local
  authorities had several managerial, practical and personal consequences for the
  facilities’ manager and staff, and it was implemented with little support from higher
  authorities. At a later stage in Cape Town came a reduction in the number of health
  districts and adjustments of their borders, which could lead to questions like: “Who is
  my boss next week?” or “Do I have a job next week?”

- The new role of a facility manager with managerial responsibilities was introduced
  and implemented, and the previous ‘sister in charge’ had new responsibilities and
  challenges added to the health care challenges in running the health facilities. These
  changes in responsibilities for the facility manager were introduced without a
  matching authority. In striving to achieve the goals of quality and equity in health
care; resource constraints, lack of personnel and the increase in HIV/AIDS and TB were obstacles, and there was no real decision making authority for the facility manager.

- With the implementation of ICT and DHIS there was a shift in focus on how to measure quality of care: from concern for the individual patient to attendance and coverage. Numbers and information from the HIS were used to assess quality of care and work performance for the health facility personnel, influenced by business and management thinking. Data quality tended sometimes to equate quality in service delivery. There was a move from emphasis on patient management towards emphasis on information management.

- Introduction of information technology added not only needs for computers and software, but also needs for new knowledge, competing with time for health care and needs to learn new methods in medical treatment without extra resources.

In exploring the health and health information organizations in Cape Town I learned that the change process at times was experienced as very chaotic with little information and support to lower levels, and everybody felt they just had to do his/her best in the day to day working situation. The data collection and IS in the facilities was mainly paper-based when DHIS was introduced. One of my informants explained: “You were going to change from dinosaur to aeroplane without going the steps. People were afraid of computers, and they had to learn a lot, but they wanted to be seen as knowledgeable people. “When you want to change a culture, you need to see the people in the system” (Information manager).

In this context the devolution of the DHIS took place. It was therefore important to get to know people’s work practice and the organizational culture in which these changes took (and still takes) place. How did the facility managers experience the introduction of ICT? They had already many reporting systems to manage. Computers and the DHIS were supposed to ease the burden of data collection and reporting. How did introduction of computers contribute to their daily management and/or planning and decision making?

The health facility, at the bottom of the health care delivery hierarchy, is a part of a wider organizational culture. Distribution of power, control and decision making authority are deeply inscribed in the existing organizational structures. Devolvement of power was a national goal, something which always implies that somebody has to give away power to somebody else. This is rarely done without resistance. A few examples of a local culture are given by HISp SA actors when they describe the SA culture in health care as: “a culture of non-questioning acceptance” and the hierarchical organizational culture as one: “in which a manager is always regarded as the superior to the information officer”. The facility managers gave their examples of local organizational culture, where a manager at higher levels was not to be opposed. Scheduled meetings between facility managers and their superiors had to be postponed if the managers above had changes in their plans. “We are at the bottom of the feeding chain, you know…” (facility manager). At the same time the facility managers also expressed similar attitudes towards their own staff: “…you will have to throw your weight around, you must be sharp, (.....), you must really implement discipline with your colleague staff …” (facility manager). Staff meetings were used to ‘tell’ more than discuss different work practice matters, in the same way as they themselves complained about their superiors.

‘Participation’ seen as ‘a right to participate in decisions that affect their work’ was simply not part of the organizational culture. The managers did not consider letting staff participate in
planning and decision making. When asked about sharing information with their staff, the answer was “yes, we show them where we are..” – pointing to a whiteboard with statistics for the last month. In the daily care for patients they worked however shoulder by shoulder and shared the workload. Relation between information managers and health personnel revealed other patterns of control and authority, depending on levels in the hierarchy.

Within this organizational culture, decentralization and participation were launched as ‘tools’ and strategies to promote the HIS development and organizational change both from politicians and IS developers.

7.2 Facility management, work practice and information needs

- What decisions can be made by staff at each level, and
- What specific information is necessary to make each of these decisions?

( Heywood and Campbell 1997)

These important questions in management and IS development posed by Heywood and Campbell in their “Lessons learned…” from a HIS development project in Ghana 1995, are central in the discourses through the time period of my discourse analysis, and also the need for them to be answered properly, if information will be used for decision making ( Schaefer 1973; Heywood and Campbell 1997; Sapiro 2001). Schaefer (1973, p. 3) adds: “According to what values? By whose definitions of reality and rationality”? These questions still are core questions and important in management theory and work practice. Thus they have guided my search for answers to the research question. Information systems like DHIS claim to provide the necessary information at each level but also that this information is not used for management. By asking facility managers about responsibilities and information needs, a different and more nuanced picture emerged.

7.2.1 Management in the health facility

Most of the earlier IS research concludes that information rarely is analyzed and used for planning and decision making at local level (Braa, Heywood et al. 1997; Braa, Monteiro et al. 2004; Jakobsen and Johansen 2004; Gouws and Gregory 2005). The reasons for this is mainly explained by lack of managerial skills and experience, lack of interest and poor motivation among care providers and local health managers to produce quality data, bad routines in data collection, and more of the information-related factors described in the discussion forum after RHINO 2001 (ref Chapter 5). My findings did not confirm these arguments. What kind of information and what are the decisions that the authors are referring to? How exactly was management at facility level described and what would the skills needed for this be? Very often the discourse did not explicitly answer these questions or tell if health care management or health information management was the issue.

When assessing management in the facilities, I find it useful to look at general managerial skills separate from use of information. The respondents in my case, all with many years of experience in running a facility, demonstrated good understanding of what management is about when talking about quality of care, challenges, objectives, priorities, staff management, resource allocation and relations to community and people in their catchments area. Within the South African Health Review (SAHR) discourse facility managers (‘voices’) mentioned skills that they felt equip them to perform their jobs; views that corresponded with my
findings (Leon, Bhunu et al. 2001). This did not concur with the descriptions in the general HIS and HISP discourse.

In serving their community, patient management was the main responsibility for the facility. Both to treat the patients visiting the facility and in reaching out to the community with health information and demonstration of what the facility could offer, they showed initiative and acted within their resource constraints. IS to cover patient management were therefore important. Relevant information was needed and collected in many ways.

Staff management was another major responsibility for the managers to be able to meet the needs of the patients. This needed close attention as there often were people on maternity leave or sick leave, and they needed to have staff at all posts in the facility every day. They were not allowed to send away patients that came to the facility. Although I found no culture of democracy and staff participation in managing the facility, the managers showed great concern for their staff members and in the interviews they discussed important issues of motivation and support for their work force.

Feedback is emphasized in the literature both in health care services and the health information process and is important for strengthening motivation and management. Feedback understood as discussion and support seemed however not to be expected. ‘Feedback’ and ‘participation’ were two concepts that translated into health facility work practice differed considerably from the discourse and the stated goals. To take these concepts seriously will however require a change in attitudes and practice that is not easy to achieve overnight.

It turned out that there was very little room for real management. Budget, priorities and important decisions were made by managers higher up and they set the conditions for managing the facility. The facility managers were left with little manoeuvrability within these given constraints. Statements like: “You can’t use your own initiative. You always got to get permission for this or that or other things, you know”; or “…sometimes I think they might as well hire an admin assistant, to do all the admin, …”; and “I would like more time to be a proper manager!” tell that they were concerned about their responsibilities and would like to do a proper job, but felt the lack of authority to do so. Managerial skills did not entail decision making power. My conclusion is that the picture of facility managers without managerial skills and motivation for producing and using information has to be drawn with more nuances and needs to be seen in this wider context.

7.2.2 Work practice, data collection and information needs

In the health facilities data collection is an integrated part of everyday work routines. Tally sheets for head count are the companion of the health workers at most stations in the facilities. What to count and how to count is however decided by management at higher levels. Data collection and use in the health facility was for the facility manager about representation and relevance. To give meaning to the facility managers, the information from the data collected needs (1) to represent their reality, (2) to be relevant for their tasks and responsibilities, and (3) they need the decision making power to use it.

Representing ‘reality’

How do you represent ‘reality’ in information systems, i.e. how to represent work practice in the health facility in the HIS? Standardization and classification are extensively discussed in the literature (Hanseth, Monteiro et al 1996; Bowker and Star 1999; Hanseth, Jaccuci et al 2006). Translated into work practice in the health facility, standards in HIS became a problem
for the health managers, as many of their daily tasks were not counted. Through the selection of an essential data set and indicators, a great deal of work in the facility and patient treatment was left out of the reporting systems. Thus work that is not represented in the IS will be rendered invisible (Suchman and Jordan 1989); work that contributes to achieving the goal of quality in care. In discussing nursing classification, Bowker and Star (1999) claim that nursing work traditionally has been invisible. The experiences described by the facility managers looked similar.

One thing that isn’t accounted for in here is phone calls. I am telling you, the number of phone calls I could get during the day, asking all sorts of questions, advice and all that, also takes up a lot of time, but they keep telling us that this isn’t workload. They say it isn’t. But when you put your stats on, and you say, you have seen so many people, you know… (facility manager about classification).

When for example a facility manager spends hours a day giving advice to patients on the phone, this is not regarded as ‘patients seen’ and will not be registered. It may look as if she had a lazy day, not ‘producing’ the expected outcome, while she has been busy all day serving her patients. Another example is the decision from Government that PAP smears should be done only at the age of 30, 40 and 50. If a nurse finds that it would be important for the patient to do this in between, they can do it, but it will not be counted. Participation in community activities, bringing information to the people is another example.

As the reports and statistics compiled from the monthly reports were used not only for planning but also to assess the work (quantity not quality) done in the facility and to measure progress towards goals and objectives in operational plans, this contributed to alienation towards the information systems instead of creating the feeling of ownership. The data collected was seen as something that did not give a fair picture of what they actually did as the numbers did not mirror the actual work load and what is carried out in the facility.

There will necessarily be tensions between local needs of information and higher levels requirements. HISPs has offered a solution to this by the possibility of adding data elements in their DHI. To take advantage of the DHI software was however not a reality for facility managers for different reasons:

- They did not have access to computers, or if they had,
- They did not have the DHI software installed or they used the PFA, or
- They did not have the time or knowledge to use it.

None of the facility managers knew of or used this functionality in the DHIS.

Relevance

Facility managers regarded the different reporting systems required from higher authorities a part of their responsibilities for the planning at district level and above. It was “something they had to do”, and they also followed with interest how they were doing compared to goals, objectives and the other facilities. They knew their statistics like curative rates and immunisation coverage. The lists and graphs that they received as feedback were displayed on the walls and to a certain extent, they acted according to it, but this was not their data. Data collected in the facility included information for the patients’ folders and information about patient groups for local planning. In addition they received information about community from health educators and from schools, dental care and others. Information about patients and the community was the most relevant for the facility manager. Manual systems and the
PFA were seen as useful for them and easy to learn and use. In the simple version PFA was more like an electronic patient record. To be able to follow and keep track of their patients, the managers asked in addition for a system that could track the patients referred to them and/or across districts. This was also acknowledged by the Health Government and among the strategic priorities for the National Health System, 2004-2009 (Department of Health 2004).

Computers

The expected advantage of using DHIS or a computerized HIS could hardly be evaluated as two of five facilities did not have working computers and DHIS was only implemented in one of the facilities visited. The benefits of DHIS can of course only be drawn upon if the software can be successfully installed and used. This was not the case in my sample. The basic version of PFA was however installed in 3 of the LA facilities and in a pilot site also extended with a module to compile reports. To be able to use the systems working computers and computer skills among staff is required, but there was shortage in staff and equipment and need for additional staff (clerks) with computer competence was mentioned by the managers.

What was demonstrated is that use of computers at facility level still has a way to go before the goal of computerization and electronic submission of data is reached. Equipment, training in computer use and use of information systems will be needed. Purchasing and distributing computers to the facilities was however not in the control span of the facility managers. Working computers are a prerequisite for acquiring competence and lack of computers is mentioned as a constraint to implementation of skills if they are learned (Williamson 2000, p. 33). Use of computers at facility level is however also debated. Heywood and Campbell (Heywood and Campbell 1997, p. 67) claim that “Reliance on computerized analysis disempowers the health workers and does not encourage local reflection about the meaning of information collected”.

If computerization at facility level continues to be a goal, it is not only a question of equipment and competence, but also a question of which software package to build on and what will be relevant information for the health facilities. Cape Town City IT Directorate recommended to building on the PFA in the City, and roll it out through the District (see also chapter 6) and this was also supported by the City Health Director. Main arguments against the DHIS were lack of patient based information and lack of local support for the system. The PFA was locally built and they did not have to rely on support from outside. A decision about what to choose will probably depend on a combination of several factors, like interest, power, personal views, finance (donors, relations) among many, as many actors are involved, but from the case study findings, the PFA would be preferred as the software to build on in Cape Town.

7.2.3 ‘Local’ use of information for decision making

In chapter 5 I have discussed the concept ‘local’ and show that this may denote both district and facility level in the discourse. I found that, when discussing this issue, it is important to be more specific about the levels, the kind of decisions we talk about and what kind of information is needed to make those decisions, to be able to understand more. In a general statement like “Health care staff and mangers have not been trained on the utility and use of information” and “(…) they do not possess the skills to employ health information to their advantage in improving health services” (Gouws and Gregory, p.327), it is not clear to what level this refers. By not being specific about what kind of information for what level, one may contribute to the resistance and non-commitment among health managers at lower levels.
Management at these two levels differs in work practice and decision making power. Facility managers had limited decision making authority. In making decisions ‘choice’, i.e. to have more than one possible action to take, is important. To be able to utilize information about the running processes in the facility you need alternative options for change. “Information has value if it can be expected to affect choice” (Feldman and March 1981, p 172). If you have no alternatives to choose among in your management, there is no real decision making and planning is an illusion. This was the case for the facility managers because the real decisions were taken “over their heads”, and it does not motivate for use of information. When the facility managers, despite these de-motivating conditions, collected data and submitted every month, it was a matter of “what we have to do”.

My findings gave a more diverse picture of information use and non-use than the overall impression from reading the literature, and can be pursued in two directions: (1) facility managers do use information; i.e. relevant information in terms of statistics to some extent, and local collected information related to patient management to a large extent; (2) reasons for not using some of the routine information are manifold.

The facility managers are mainly responsible for patient management and collect local information according to their needs in addition to and outside the formal routine information systems required. Information management has to take into account the information needed for their tasks in addition to the information required by higher levels.

The managers gave many examples of how they used information in their daily work. Routines and assessments in following up patient treatment were used to a large extent, but some of the non-routine examples would be difficult to capture in a formal system, computerized or manual. The information in these examples was to a large extent collected outside the DHIS, and was related to following up single patients and patient (diagnostic) groups as for example babies and (mal-) nutrition, immunisation of children that had not completed the programme, diabetic patients, community actions, fighting teenager pregnancy, and increase in burn wounds in winter (due to fires) to mention some. This was information that was regarded ‘their own information’ and that was useful to them in their facility management, collected and systemized in their own way. They did however also to some extent use the information from RMR, TB, HIV/AIDS reports. The cooperation with MSF to receive resources for ARV treatment is an example of successful use of statistical information (see Section 6.3) Another example of local information was the following up of the diabetic patients group that led to action and showed positive results, i.e. the patients lost weight and could change treatment from insulin injections to controlling the disease with diet. Attempts to use statistical material to influence planning, budget and resources in meetings with higher level managers were negative.

The findings suggest that among reasons for not using routine information, some of the non-informational factors offer more explanatory power than the information-related factors, as already discussed (see Section 5.7.4 ‘Information culture’):

- Lack of decision making authority
- Lack of relevance to health facility management
- Lack of real participation and authority
- Lack of computers, personnel, training and time

To evaluate information use HISP had developed the ‘TALI tool’ (see description in chapter 6). When the TALI tool is set as a standard for assessing information use, it has a narrow
perspective. Even if it is said explicit to only be concerned about data entered into the DHIS (see footnote table 6.3), you somehow get the impression that it is the evaluation of the information culture and information use in the facilities. The TALI tool says however nothing about the reality for the facility manager in utilizing this information for decision making. In Cape Town the tool had not been introduced to the facility managers as such. It was only used by the information manager at PAWC as a basis for the ‘Data quality workshops’. It was designed to be used for assessing the PHC dataset. This tool and the indicators for facility can also be seen more as a control device for higher authorities than a working tool for the facility manager. It is said in the introduction to the tool that “the use of this tool will help us to assess our progress” (i.e. in information use), it is however not clear to whom ‘us’ refers. I find that this tool does not take into account the managerial situation for facility managers and their need for information. In HISP discourse the issue of decision making power is not emphasized when talking about assessment of information use.

To increase and promote use of all kind of information, decentralization (i.e. empowerment), participation and ownership remain core values. Real participation for the facility manager in health management and health information management and the possibility to include community forms a challenge for the health and health information organizations.

Developing capacity for participation as discussed by Byrne and Sahay (2003) may be one way of working towards that goal. To create mutual understanding of responsibilities and information needs between the managerial levels and between information managers and facility managers through joint projects, may be another step. Based on the view that language and discourse creates ‘realities’, I also recommend focusing on these aspects in describing action research projects and the following reports, and thereby contributing to change in awareness, attitudes and action.

In “Lessons Learnt in the Implementation of Primary Health Care”, ISDS quotes TS Elliot’s “The Hollow Men” to picture how they experience the gap between the goals and the reality:

Between the idea
And the reality
Between the motion
And the act
Falls the Shadow

Between the conception
And the creation
Between the emotion
And the response
Falls the Shadow

(Barron and Monticelli 2003)
7.3 Information culture at facility level

When discussing whether an information culture exists at facility level, I find both the working definition of Zeng (2005, p. 3), which includes: “(..) the general capability, views, norms and rules of behavior, with regard to accessing, understanding and using information in a social collectivity” and the framework of Martin, Lycett et al (2003) useful. In their framework they divide information culture broadly in two dimensions: (1) the informal system, which spans two layers of the culture and covers beliefs, values, meanings and also informal behaviours and (2) the formal information system that covers formalized systems, structures, processes and procedures (see figure 2.2). Within this lies the technical IT system.

When presenting the PRISM framework, LaFond and Fields (2003) also emphasize that one should not simply focus on the perceived obstacles to RHIS performance, but include intangible concepts in human behaviour such as motivation, attitudes and the values that people hold related to health information, job performance, responsibilities and hierarchy (LaFond and Fields 2003, p. 21).

As described in chapter 5, many of the texts in the HIS and HISP discourses claim that there is no information culture present in the local health care and relate this to lack of information use. It is claimed that workers both at facility and district level only regard information systems as nothing more than upwards reporting systems, although there are examples in the discourse of information use in the facilities. Lack of authority and decision making power, and the fact that collection of data elements do not reflect their priorities, is for example mentioned as possible reasons for lack of information use (Haga 2001; Jakobsen and Johansen 2004; Gouws and Gregory 2005; Sheikh 2005). Decision making power for use of information and relevance of data are however important issues when evaluating information culture. Somehow these last examples do not outweigh the negative picture of the facility managers without information culture when conclusions are drawn. One might ask if the discourse creates a reality over time, i.e. lack of information use and information culture that influence what students and researchers are looking for in the field.

In the discourse Mukama et al (2005) gives an example of how existing work practices and organizational culture re-enforce existing social relationship between health workers at grassroots levels and their managers at higher levels:

(…) health workers at grassroots levels view the data they are collecting as means for showing their managers what they do rather than seeing health management information as means for planning and delivery of health services, or as part of the basis for evaluating quality of care.

The facility managers described a work practice and organizational culture that might explain the fact described here in a different way: The data they are collecting are in fact used as means of control from their superiors. In district planning and feedback the facilities are evaluated in relation to indicators and baselines that are set by district and above, and the statistics are used to see if they are up to their goals. If not, their work is questioned and they have to explain why they do not reach these goals. As part of the organizational culture, supervision and feedback was about control and built on a view that personnel do not have a genuine motivation but need to be controlled.

The HIS and HISP discourse emphasize the need for developing an information culture and claim that there is no such culture at local (facility) level. What was there when the pilot projects started is described as chaos, no knowledge or understanding among the health
workers, and consequently there was a need for experts to help sorting out and develop a system that made the change and contributed to developing an information culture. What kind of action would be seen as an example of an existing information culture?

When information culture is assessed in the HISP discourse, use of the functionality in DHIS for making statistics/graphs and use of the regular feedback from the information management was among the criteria for an existing information culture. The TALI tool and the “levels of information use” tell what was seen as a well developed use of information. I could see no acknowledgment of the existing information culture in Cape Town, and this was also the way some people felt about the introduction of HISP and DHIS. This fact again led to resistance to the DHIS. From the informants, poor communication within existing human structures was given as one explanation why there was a general resistance to DHIS. It was claimed to have made a lot of damage, led to communication break down and to “marginalize our own people” (information manager).

The researchers and information managers involved in the HISP initiative seemed to generalize from the experiences within this narrow frame: “the local managers do not use this statistic information for decision making” translates into “there is no information culture”. Resistance towards this application was interpreted as a general resistance to change.

In my research I looked for information use and culture in the wider organizational and societal context and I let ‘information’ include all relevant information for facility management. I found that there was a great interest in information systems, also computerized IS. Information culture seen as “the general capability, views, norms and rules of behavior, with regard to accessing, understanding and using information in a social collectivity” was demonstrated when talking about patient management and daily routines as described in chapter 6. The power distribution in the organization put boundaries around the actual use of information.

I argue that facility managers are skilled managers. They value and use information for management, formal and informal when the available information is relevant to their tasks, and they have the authority to use the information to make decisions. Consequently I claim that an information culture exists at facility level. I also argue that understanding and acknowledging this is important for development and sustainability of HIS in developing countries. Local information culture is something to build on parallel with a further development of the decentralization and empowerment goals.

**7.4 Health Information systems in developing countries - concepts and themes**

In this section I will review some of the core concepts analyzed in Chapter 5 “Discourse Analysis” and discuss how their mediated meaning in the discourse may influence the research and actions in HIS development. Their interpretation did not only differ between different actors in the discourse but did also fluctuate over time. The discussion is related to the following concepts and themes: ‘decentralization and empowerment’ and ‘participation and ownership’.
7.4.1 Decentralization and empowerment

The principle of decentralization is a matter of effective management as well as one of democratization and empowerment. The meaning of the concept is described differently by the different actors at different times in the evolvement of PHC and HIS. Decentralization is a crucial principle in all PHC and HIS literature since Alma Ata. In the political and PHC discourse, devolvement of power from province to district is important, and community involvement is described as crucial. District is the ‘local’ level of decentralization, and decentralization of management and decision making power to district is seen as a prerequisite for local empowerment. The level of decentralization plays an important role in the RDP in South Africa - and in the evaluation of HIS.

The implementation of the district model in the health organizations in SA followed local government restructuring and the process was not without problems. The development was described in the SAHR discourse as “a messy transformation that has caused confusion, wasted effort and time and had a serious impact on the morale of health workers at the PHC level”. This was something that in turn had negative impact on the extent and pace of improvements in PHC (Barron and Sankar 2000). These problems and obstacles in the practical deployment of the PHC development process are mainly described in the SA discourse, and not in the HISP discourse, but can increase our understanding of why it seems so difficult to reach the goals in HIS development.

HIS general and HISP discourse emphasize the importance of a decentralized HIS management and point to the advantages and possible empowerment for health workers at lowest level by introducing ICT using the DHIS software. In the HISP project the goal was through development and implementation of DHIS to “building capacity and empowering health workers and community” (Walsham 2001, p 197). This goal is still emphasized and described in HISP discourse. There seem however to be a change in focus from community participation to local (=district?) health and health information managers participation.

Problems in implementation of DHIS are discussed in early HISP discourse but not much focused on later. 3 major problems are discussed: (1) enthusiasm and participation had fluctuated on their projects with a lot of people being active for a time and then stopped attending meetings; (2) a seeming inability to get real representation from the facilities; (3) community involvement had been problematic, with decreased levels of activity after the initial phase of the projects. Reasons for this given by the researchers were differences in perceived goals and background between people from the community and the health service providers; and community representatives had felt ‘sidelined’, for example when technical medical or information systems language was used (Braa 1997; Walsham 2001, p 197).

Introduction of computers had been recognized in the discourse as a useful tool for analysing information at higher levels, but emphasis on computerized analysis may instead lead to disempowering local health workers without computer skills and training (Heywood and Campbell 1997).

There are many references in the literature to the relation between use of information and decision making power, and it is repeatedly mentioned in local HISP workers writings. It seems however that this is not seen as an important issue in the later global HISP writings.

Those who engage in developing a decision-support information system cannot avoid the issues of authority, local decision making, and autonomy for the health centre manager (Abrantes 1987, p. 422).
Experience has demonstrated that unless there is management support for practice within a framework of political will, organizational infrastructure, delegation of authority and adequate human, financial and technological resources, available information cannot be used for decision making and thus does not, and in fact, cannot contribute to improved coverage and quality of health care (Williamson 2000, p. 8).

So what decisions remain for the facility manager to make? If we judge according to the way the facility manager feels it, not much.

Not, to tell you the truth, not much. The only thing we really can control is the refreshments, that is the tea and coffee, and things, which is almost nothing. You can have a bit of control there to say, ok we have overspent, we have to keep back, and then. The other things is the consumables, that is, your cleaning material and things, but you also just have the control about what, the amount you spent. You don’t have a control to say, ok but I can get that thing that works better, cheaper at that place; I want that. You don’t have that control.

(facility manager about decision making power)

When asking facility managers, they did not feel or experience being empowered. This claim was based on the fact that the important decisions were taken by their superiors over their heads, and those who did try to use the collected information to point to need for change according to their needs, did not think that they were taken seriously. The decentralization principle was implemented in some of the formal organizational structures but not in distribution of real decision making power as a part of the organizational culture. Managerial competence and understanding data collection and the value of information did not have the intended effect. Decision making power did not follow the managerial responsibilities. Abrantes’ conclusion from 1987 still holds:

It is worth adding that developing an information system for a unit where there is no decision making power is likely to be a useless, frustrating and costly exercise

(Abrantes 1987, p. 421)

By focusing on facility managers being without skills, equipment and motivation in the discourse when explaining lack of information use, offering computers, training and information systems seem to be a solution to the problem in management of PHC. To act towards the more important reasons like lack of decision making power and resources will require a different approach.

7.4.2 Participation and ownership

The importance of participation as a motivating factor in organizational change is expressed in organization theory and also repeatedly emphasized in the general HIS discourse. Increasing participation will cause increases in satisfaction and motivation to meet organizational goals (Katz and Kahn 1978). How the concept is described in the discourse is elaborated in more detail in Section 5.7.1. 'Participation' in WHO documents and in National Strategic Priorities in SA is related to community participation in the governance of PHC. Participation and a feeling of ownership to the information provided are also core values through the HISP discourse. In design of information systems ownership is seen as an effect of participation that in turn will lead to use of the information. It is repeatedly claimed that participation is a prerequisite for ownership, and creating ownership is the key for the survival and sustainability of IS.
When the facility managers did not express the feeling of ownership to the information from the routine HIS, lack of participation both in health care management and HIS development may explain part of it, and lack of relevance to patient management is another important reason. In defining the concept ‘ownership’, “possession: the act of having and controlling property” was one of the properties (Section 5.7.1). The facility managers did not control the information provided by these HIS, they were rather controlled by them.

HISP builds on the Scandinavian approach, which is rooted in a culture of democracy at the workplace. This is however not the situation in most developing countries and Braa (1997) points to the need for adapting participation to the existing political and cultural setting. The important questions in discussing participation are: Who participates and in what? Who decides what data to collect and for what purposes?

Participation from a human right perspective is discussed by Byrne and Sahay (2003). They claim that there has been limited discussion on issues such as why and how workers participated, or the degree and type of participation within the organization, and they conclude that there is a need for reconceptualise the concept: “We need to move away from the workplace to the community served by the PHC services; from participation of workers for improved design to participation as a right […]”.

When introducing participation as a principle in the piloting period of HISP, the concept ‘community based participatory design’ is used (Braa 1997). Participation from different stakeholders is described as important but also a challenge as the enthusiasm gradually devolved. In my findings, people included in the HISP organization generally were enthusiastic to the project and had the desired feeling of ownership to the information system and a group belonging. In information management they were divided in what to go for. In the development of DHIS, local actors who showed resistance to the software, felt however sidelined and disempowered. When change is introduced by people ‘outside’ the organization, it is important to build relations to those who have knowledge and are already inside the organization. To acknowledge existing knowledge and competence may ensure positive attitudes and willingness to participate (if invited to). “People want to be seen as knowledgeable you know” (information manager). The facility managers in my case had no feeling of having participated in the development of DHIS, something that might be different in the pilot sites.

The facility managers gave examples of a feeling of ownership when talking of their own local initiatives. When talking about information and action they used ‘we’, ‘I’ and ‘my’, while when talking about statistics and management at higher levels, they used ‘they’. In utterances like: “What we do…”; “I have there…”; “in my pharmacy…” they identified themselves as responsible and in charge. On the other hand in utterances like: “They send us graphs, but…”; “They look at the reasons why you don’t get to your targets…”, the facility managers showed a certain distance to the information.

There seemed to be a significant gap between the stated goals and the reality as experienced by the managers, in local health care as well as in information management. In the implementation of the district model in PHC and new organizational structures, the facility managers were not included and had no information in advance of the changes. They “were told” how things were going to be and often “in the last minute”. This led to frustration and a struggle to identify new head managers and new procedures. The goal and process of merging the 2 health care service organizations in Cape Town was decided by head managers without
including lower levels. The meaning and intention of participation for a person “to take part in those decisions that affect his or her role in the organization”, was not met.

Although the EDS mirrored the information needs at higher levels for planning, the information was also used to control the work in the facilities, and the facility managers did not see how it could give a correct picture of what they were actually doing in their daily work. As participation is seen as an important factor in developing a feeling of ownership, this lack of participation in important stages of development, both in the health organizations and in the IS development may explain a part of this lack of ownership. An important precondition for developing ownership was missing.

7.5 Methodological approach

Interpretive methods of research start from the position that our knowledge of reality, including the domain of human action, is a social construction by human actors through language, consciousness and shared meanings. This was demonstrated through the findings both in the case study and the discourse analysis. ‘Reality’ in local health care and local information management was in the literature described by using ‘good’ concepts without being explicit about their interpretation and ‘reality’ was described and interpreted differently by different actors. Results from the case study showed how facility managers described ‘reality’ from their point of view differently than discourse. Ethnographic research methods were particularly suitable for getting insights into the experienced reality of the facility workers and managers. I have chosen to present the facility manager reality as ‘voices’, expressing their view without discussing the concept ‘voice’ in depth. ‘Voice’ here simply represents the facility managers own views and experiences. My research site is not a typical rural site as in many developing countries areas. Cape Town district is a relatively well developed urban area and may have at its disposal more resources than in remote rural areas. A ‘less developed’ environment might have less resources and less educated and skilled managers, but the main arguments of what constitutes information culture and how to assess this at facility level in PHC will remain the same and therefore the findings in this thesis will also apply to other sites.

In combining ethnographic research methods such as interviews, observations and document review with discourse analysis, I have been able to give a broad perspective and description of the research area. Discourse analysis has been particularly useful in studying the HIS development literature over time and the possible impact on research as it unfolds in time. The persistent argument that facility managers do not use information for action has created a ‘reality’ that may have influenced what students and researchers were seeing in the field. This argument was often referred to and confirmed, and thus tended to be recycled, even if the findings from research studies were not unambiguous and provided more nuanced results.

The field research with interviews and observations gave unique insights in the daily life in the health facility. Although I had only one day of observation in each facility, the possibility to stay with over a working day established a relation to the staff that opened up for talk and discussion. The relation established to the facility manager on the observation day also contributed to openness in the interview that was conducted a few days later.

An interpretive approach also requires that the role of the researcher is taken into account. In my struggle to understand the facility manager’s situation in the health care delivery and health information organization, I brought with me my own personal and occupational values
and in my choice of approach there was the risk of over-identifying with the respondents. A neutral or value-free position in research is however not possible, and being aware of those values that I brought with me, it was possible to get identified and studied certain problems in particular ways that otherwise may not have been possible (Silverman 2001, p. 260). My experience as a practitioner (as a social worker) turned out to open up the communication and thus provided information from the informants that might not be given to a researcher with theoretical background. Little attention had been paid to the facility managers, and I was seen as a possibility to achieve improvements.

7.5.1 What has not been discussed

In Africa and particularly in South Africa, with its political history, the question of race and colour cannot be ignored. While the old health care system was very much for the white population, the PHC services today are mainly the domain of coloured and black people. Still this has not been an issue in any of the literature that I have been reading. This, I think should be a topic of interest, when evaluating development and organizational change in developing countries, initiated by white people. I will however not include this big issue in my thesis, simply because it will require time, skills and knowledge that I do not have.

The question of race and colour must however also be relevant for HISp and implications of this for research and IS development in SA. South Africa with its history of discrimination during the apartheid regime had only 10 years of democratization when I visited Cape Town. In a conversation with a coloured young man (facility clerk), he said to me: “I am old enough to have experienced the discrimination under apartheid. Every day in the past 10 years I have told myself: Remember, first of all you are a human being, then you are a man and last you have coloured skin. Today I can talk to you without being affected by the fact that you are a white woman”. My reflection to this statement is that it also must have had implications in the cooperation between white, academic and IT people from Europe and the coloured and black health workers, health administrators and academic people in South Africa. This is of course a sensitive issue to explore, but in-depth research in this domain might extend our understanding of the existing organizational culture in SA health organizations and how the information systems development and the major structural changes affect workers, managers and organizations by the involvement of external groups of people.

7.6 Conclusion and further research

It seems a fair claim to say that decentralization and devolvement of decision making power (empowerment) to facility level is a political and organizational issue where even the best information system has only limited influence. Information systems like DHIS are useful for planning at district level, but seem less relevant for managing the health facility.

The feeling of ownership and use of information for local action is present when there is correspondence between responsibility and authority and use of information make sense. This fact has been presented throughout the HISp discourse as a key feature and is also confirmed in my findings, but seems not to be taken as a valid explanation for why DHIS information is not used for decision making at facility level in the HISp discourse.

How routine information systems like DHIS can support managers at facility level remains a core question, and how to minimize the extra burden that it has to be to collect all the data required? This question has been raised many times, although mostly concerned about
adequate performance of RHIS at district level. I strongly recommend to focusing on facility level to include the main providers of information. Involvement of community is also recommended both in health services planning and in IS management (RHINO 2001, p. 14; Byrne and Sahay 2003).

Acknowledgement of the existing information culture and local initiatives are crucial to establish relationships based on equal valuation of the cooperating parts and will contribute to creating the ownership that is viewed as crucial if you want to strengthen the information culture that is there and achieve local use of information for action. Participation in decisions that affects one’s work practice is still a sound principle.

During my field work study relations between groups of people (actors) caught my interest. In the literature, relation between ‘data people’ and health people was mentioned as a possible obstacle in ISD. I could also feel tensions between local information managers and developers and external researchers and project managers, between levels in the health service hierarchy and so fort. I could see the need for building relations in many directions: to community, NGO’s, between information (data) people and health managers, to local government and to local software developers. Building relations is an important part of ISD and need to be taken seriously.

It is still a question whether the goal of introducing computers at facility level in developing countries will lead to empowerment or disempowerment. Lippeveld (2001,p.24) also raises this as a resource management question to be discussed; i.e. at what level is computerization appropriate. Students (researchers) tell stories of computers that have been bought, there has been on site training and 2 years later they find the computers unused. I do not know if this was due to financial, cultural or competence problem, but it may look like a waste of resources.

The facility managers in the study did not expect this research initiative to bring something for them and they showed great scepticism. “What will be in it for us?” was their question, while some of them urged me to further their experienced situation for higher authorities. Through the results of this case study it has been my wish to make a contribution to the HIS research community that would make a difference for the involved stakeholders – included the health facility mangers.
8 Bibliography


Campbell, B. (2003). Data to Decision Making: Delusion or Destiny? Second International RHINO Workshop on: Enhancing the Quality and Use of Routine Health Information at District Level, Eastern Cape, South Africa, MEASURE Evaluation, USAID.

Campbell, B. (2003). Data to Decision Making: Delusion or Destiny? Second International RHINO Workshop on: Enhancing the Quality and Use of Routine Health Information at District Level, Eastern Cape, South Africa, MEASURE Evaluation, USAID.


HISP (2003a). Report on HISP activities to NHISSA. Cape Town, University of Western Cape.


Jakobsen, E. and A. K. Johansen (2004). All I want is a system that works. Evaluation of the health information system in Cape Town, South Africa - using an information audit to capture views from the grass root level. Department of Informatics. Oslo, University of Oslo.


RHINO (2001). The RHINO Workshop on Issues and Innovation in Routine Health Information in Developing Countries. The RHINO Workshop on Issues and Innovation in Routine Health Information in Developing Countries, Potomac, MD, USA, MEASURE Evaluation Team, JSI Research and Training Institute.

RHINO (2003). Enhancing the Quality and Use of Routine Health Information at District Level. Second International RHINO Workshop on: Enhancing the Quality and Use of Routine Health Information at District Level, Mpekweni Sun, Eastern Cape, SA.


Schaefer, M. (1973). *Evaluation/Decision-making in Health Planning and Administration*. Chapel Hill, Department of Health Administration, School of Public Health, University of North Carolina at Chapel Hill, USA.


Shaw, V. (2002). Levels of Information Use, University of Western Cape.


Appendixes

Appendix A: Permission request

City Health Directorate

UWC, 29. October 2003

Dear Sir,

In connection with my Master degree at the University of Oslo, I would like to do a field research in Cape Town, under the supervision of Dr Gavin Reagon, School of Public Health, UWC and Prof. Judith Gregory, University of Oslo.

My focus will be on: How routinely collected data are used to inform decision making and management within the Primary Health Care Facilities, both under the Local and Provincial government. It will be a qualitative research with observations and interviews with a few facility managers.

Ms Lorna Solomon and Dr Hassan Mahomed will assist me in choosing facilities for my investigation, and I would kindly ask for your permission to do my fieldwork.

A note describing the criterias for choosing facilities and a letter to the Facility Managers follows as attachments.

Regards

Inger Elise Østmo
Appendix B: Letter of approval

City Health Directorate

To
I E Ostmo
School of Public Health

Dear Ms Ostmo

RE: How routinely collected data is used to inform decision making and management within primary care facilities

Thank you for your request to conduct research as set out in your research letters. Permission is hereby granted for you to conduct the research as set out. We would value any research recommendations which would help to improve our organisation’s services. However, we do expect the following from you:

1 All individual patient or staff information obtained must be kept confidential.

2 Informed consent must be obtained for interviews.

3 Ethics approval for your research should have been obtained from a relevant institution’s Ethics Committee.

4 A copy of your final report should be sent to the Health Directorate within three months of its completion and a feedback session to the services and staff should be held.

5 Access to the clinics and its patients should be arranged with the relevant managers such that normal activities are not disrupted.

In general, all research conducted through our services should be done in an ethical and sensitive manner. Please let me know if you need any assistance.

Please fill in attached research database form which is required for our records.

We thank you for your co-operation.

For the Director: City Health Services
Appendix C: Letter to facility managers

UNIVERSITY OF THE WESTERN CAPE

SCHOOL OF PUBLIC HEALTH

TO THE FACILITY MANAGER

Cape Town 29.10.2003

I am a Norwegian Master student, who wants to do a field research study in Cape Town within the Primary Health Care, looking at the collection and use of routine data in the Management of Health Services.

In the last years, focus has been very much on District Level and District Managers, but my interest is in the Facility Level, where service is provided and all data are collected.

I would like to get a better understanding of the context and daily working conditions that you are dealing with, what problems and challenges you are facing, and to what extent you find the data that you collect, to be useful for your purposes.

To accomplish this, I would want to visit your facility and spend “one day in the life” with you and your staff. If you could spend some time in the morning, introducing me and showing me around, I would then like to just “be there”, to ask some of your staff members if I might sit in with them for a while, or follow them around while they carry out their work. With your permission, I would also like to take some photographs (not of patients) of your environments and tools you use in your work.

Some days later, I would like to do an interview with you, with the same focus and interest. We might need 1 - 1,5 hour or so for the interview, and with your permission, I will audio-record the interview. This will make it easier to concentrate on the conversation.

In my field research I will try to visit and interview rather few facilities, but with a broad variety of properties.

I have no pre-assumptions as to the results of this research, but hopefully I will be able to capture your reality and illuminate some of the challenges you are facing – perhaps even, with this documentation, I will be able to contribute to changes that could facilitate your work.

Best regards

Lise Østmo
Appendix D: Interview guide
Interview with Facility Managers

Professional Background

Can you tell me about your professional background both as a nurse and a manager?

- **requirements** for managerial experience / education when you apply for a job as facility manager?
- did you have any **experience**, education, training in management when you entered this job?
- **If no** management experience / education: Did you get any **training** / introduction to management from your **superior**?
- do you get any **supervision** now - regularly? What would you like

Managing services, staff and finance

How would you describe your responsibility as a manager?

- Do you have a job description or something like that, describing what your **responsibilities** are? Do you think it is of any use to you?
- Do you have a **business plan** – a set of goals / objectives? Can you show me? Who sets the objectives for your services: you / you and your staff together / higher authorities / combinations?
- Do you feel that you have **options** in setting your priorities? What would be your 2-3 highest priorities? **or what kind of decisions are you able to make?** Do you think that you have the **power** (options?) to act according to your responsibility i.e.

Managing data / information

Can you describe the data collection and different reporting systems you are managing?

- How many reporting systems do you have? (see overview – correct?)
- The reporting systems are mostly about the health services? or Do you have to report on a business plan, i.e. responsible for results (both finance, staff and operational)

  **if yes**, to whom? how often?

Can you show me a business report? for your clinic?
• Do you **analyse** and **use** the data collected to assess your achievements **before** you submit to different authorities? **After**?

• that is, do you get **feedback** in time to be able to use information for decision making?

• What **kind of feedback** do you get? **Satisfactory** – or **need more**?
  The waiting time survey, were you a part of it? What do you think about it?
  Could it be of any use to you?

• Have you added any data elements to the RMR? for your own interest?

• Do you get **reports / information** sent to you that you **do not collect yourself**?

• if **using**: can you show me one or two examples where you use the information?

• Do you have meetings with your staff where you discuss the present situation (targets, achievements…..) and possible actions to change / improve? How often?

• Do you think the **data and information** available to you are **useful / sufficient** to manage the facility? or

• **do these stats have any interest or impact on your daily work / management at all?**

What do you think are the main constraints in your facility, trying to achieve the objectives? (time, knowledge, tools, equipment,)

What changes would you suggest to improve management? What would you do differently?
• Things you do not need - that are superfluous? **additional needs?**

There have been **changes in organising health services** during the past years. Do you think that these changes has caused difficulties for you as a manager? (change in reporting systems, change in goals/objectives/operational service)

• How was organizational change introduced and implemented? Participation in the preparation phase? Over your head?

**TALI Tool**

**Are you familiar with the TALI Tool (TT)?**

  If **yes**, can you tell me a little about how you are using it?
  **Add**: Do you find it useful for your purposes (management)?
  Using regularly?
• If not, Do you think it would be interesting / of any help to you in running the clinic to have a tool for self-assessment?

• Evnt: can we “talk through” it informally? (use “Self Admin. Questionnaire…”)
  – this is not part of an survey or s.thing but I would like to know what kind of training / introduction the facility managers have got to different tools. (I do know that Lorna Solomon – provincial level – has had a “Data quality workshop” where she has used the TT and introduced the first level of information use. I do not know what the local authorities have done)

• This is a tool for self-assessment – assesses the level of information use. Explain the different levels and the “Assessing Data Submission and Feedback at Facility Level” form. (see Lornas graph on Submission ..)

• The next only if appropriate:

• Maybe you are not supposed to have reached higher levels of information use, but maybe you just have?

• i.e.: do you use indicators and graphs – and, for example, have them displayed on a wall in the clinic?

• If yes:
  Can you show me?
  and/or do you have management meetings with your staff regularly, where you discuss the indicators? (progress…..)

  If yes, how often?

• Do you find the indicators easy to understand and use?

• Have you identified one particular problem and addressed it through an action plan? Do you use the indicators to show progress in dealing with this specific problem?

• Some indicator(s) you find specific useful?
## OPERATIONAL PLAN CENTRAL DISTRICT 2003 / 2004

### District Health System

**GOAL:** To ensure an effective management of resources in alignment of operational plans.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Activity</th>
<th>Constraints</th>
<th>Target</th>
<th>Indicator</th>
<th>Numerator/Denominator</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To improve the procurement and supply of essential drugs through project</td>
<td>Top 40 VEN and ABC Drugs known and displayed in Pharmacy. Be within monthly target of medicine budget. Monitor ordering pattern and adhere to minimum stock levels.</td>
<td>Suppliers out of stock</td>
<td>80%</td>
<td>% of stockouts of Essential drugs.</td>
<td>No. of stockouts/No. of essential drugs</td>
<td>Pharmacist in Charge, Facility Manager, District Manager</td>
</tr>
<tr>
<td>• To improve health management Information Systems by putting structures in place at CHC level.</td>
<td>To ensure accuracy of collection &amp; collation of Data at each centre. Information officers and Fac Mx attend and present at monthly combined Health Info meetings with LA.</td>
<td>Commitment &amp; trained staff</td>
<td>80%</td>
<td>% of inaccurate RMR and validation errors</td>
<td>No. of inaccurate RMR's/No. of RMR's submitted</td>
<td>Health Info Officer, Facility Manager</td>
</tr>
</tbody>
</table>


QUALITY OF CARE

GOAL: To improve the quality and effectiveness of care for patients and staff.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Activity</th>
<th>Constraints</th>
<th>Target</th>
<th>Indicator</th>
<th>Numerator/Denominator</th>
<th>Responsibility &amp; Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>To improve the Quality of service by Monitoring Complaints.</td>
<td>Implementation of Complaint/compliment register.</td>
<td>Capacity at the CHC</td>
<td>100%</td>
<td>% of complaints or compliments received.</td>
<td>No. of complaints resolved at local level / No. of complaints received.</td>
<td>Facility Manager</td>
</tr>
<tr>
<td></td>
<td>One dedicated person for Bato Pelie personnel.</td>
<td>Training of Staff</td>
<td>100%</td>
<td></td>
<td></td>
<td>DMT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Reporting Quarterly</td>
</tr>
</tbody>
</table>
# CLUSTER: PROGRAMME HEALTH PROMOTION

**PROGRAMME:** Oral Health / School Health / Nutrition / Health Promotion.

**GOAL:** To optimize the health of Children and Adults by improving Health Promotion activities.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Activity</th>
<th>Constraints</th>
<th>Target</th>
<th>Indicator</th>
<th>Numerator/ Denominator</th>
<th>Responsibility Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Violence Awareness</td>
<td>Raise awareness amongst staff &amp; Clients</td>
<td>Commitment from Health promoter and training.</td>
<td>85% of CHC's with an awareness session quarterly.</td>
<td>% of reported cases of Domestic Violence.</td>
<td>No. of cases reported / No. of centres.</td>
<td>Health Promoter Mx Staff</td>
</tr>
<tr>
<td>Chronic Diseases of Lifestyle</td>
<td>Establishment of Diabetic Clubs</td>
<td>Physical Space, Staff Resistance, Availability of Health promoter &amp; Dietician</td>
<td>100% of centres with clubs within the year.</td>
<td>% of centres with clubs functional with CNP</td>
<td>No. of CHC's with Clubs / No. of Centres.</td>
<td>Fac A x Health Promoter Staff</td>
</tr>
</tbody>
</table>
**CLUSTER : PROGRAMME HEALTH PROMOTION**

**PROGRAMME :** Oral Health / School Health / Nutrition / Health Promotion.

**GOAL:** To optimize the health of Children and Adults by improving Health Promotion activities.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Activity</th>
<th>Constraints</th>
<th>Target</th>
<th>Indicator</th>
<th>Numerator/Denominator</th>
<th>Responsibility Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Violence Awareness.</td>
<td>Raise awareness amongst staff &amp; Clients.</td>
<td>Commitment from Health promoter and training.</td>
<td>85% of CHC’s with an awareness session quarterly.</td>
<td>% of reported cases of Domestic Violence.</td>
<td>No. of cases reported / No. of centres.</td>
<td>Health Promoter Facilitator: Mx</td>
</tr>
<tr>
<td>Chronic Diseases of Lifestyle</td>
<td>Establishment of Diabetic Clubs</td>
<td>Physical Space Staff Resistance Availability of Health promoter &amp; Dietician</td>
<td>100% of centres with clubs within the year</td>
<td>% of centres with clubs functional with CNP</td>
<td>No. of CHC’s with Clubs / No. of Centres.</td>
<td>Staff</td>
</tr>
</tbody>
</table>

*Note: The table continues with similar entries for different objectives and activities.*
Appendix F Operational Plan Tygerberg East

Vision

provide sustainable, quality care to the

Introduction

2003

Operational Plan Tygerberg East

...
VISION

To provide sustainable, quality care to the communities of the Tygerberg East Health District

INTRODUCTION

1. Quality Of Care

The Tygerberg Eastern District will strive to focus on their vision to support the organisation in the achievement of its strategic objectives. To provide sustainable, quality care to the communities, they will ensure the quality of clinical care by implementing standards, training staff, and monitoring patient complaints and patient satisfaction questionnaires. They will ensure productive staff by caring for the carer, teambuilding and having plans in place to address organisational factors influencing work motivation. Motivation is influenced by the personal characteristics of an individual and by the various conditions that exist in the organisation.
FORMAT

1. Vision

2. Introduction

3. Key Performance Areas
   1) Quality Of Care
   2) HRM
   3) Procurement
   4) Finance
   5) Programmes
# QUALITY OF CARE

**GOAL:** TO PROVIDE AND SUSTAIN QUALITY CARE TO THE PATIENTS AND STAFF

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>CONSTRAINTS/OBSTACLE CONSIDERATIONS</th>
<th>INDICATORS</th>
<th>TARGET</th>
<th>NUMERATOR/DENOMINATOR SOURCE</th>
<th>RESPONSIBILITY</th>
<th>FREQUENCY OF REPORTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure the quality of clinical care provided by: 1. Implementing standards 2. Trained staff at least 60%</td>
<td>Inadequate competencies Reduced capacity</td>
<td>% Of standards implemented at the CHC’s</td>
<td>100%</td>
<td>No. of standards implemented No. of standards</td>
<td>DMT, Facility Managers</td>
<td>Monthly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% Of CHC’s with training needs identified</td>
<td>60%</td>
<td>No. of staff trained No. of staff</td>
<td>Facility Manager</td>
<td>Monthly</td>
</tr>
<tr>
<td>To improve patient satisfaction by implementing a 1. Patient satisfaction assessment 2. Monitoring patient complaints</td>
<td>Reduced capacity</td>
<td>% Of CHC’s with patient satisfaction questionnaire in place</td>
<td>100%</td>
<td>No. of CHC’s responding No. of CHC’s</td>
<td>DMT, Facility Managers</td>
<td>Quarterly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% Of CHC’s with patient complaint procedures in place</td>
<td>100%</td>
<td>No. of CHC’s complying No. of CHC’s</td>
<td>DMT, Facility Managers</td>
<td>Monthly</td>
</tr>
</tbody>
</table>
### COMPLAINTS AND COMPLIMENTS: RETURN

**FACILITY:**

**PERIOD UNDER REVIEW**

<table>
<thead>
<tr>
<th>SERVICE AREA</th>
<th>COMPLAINTS TOTAL</th>
<th>OUTCOME</th>
<th>COMPLIMENTS TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CATEGORY OF COMPLAINT</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>RESOLVED</th>
<th>UNRESOLVED</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

174
Appendix H Labour relations

Provincial Administration: Western Cape
COMMUNITY HEALTH SERVICES ORGANISATION

LABOUR RELATIONS SECTION

MONTH OF: ______________________

MONTHLY STATISTICS REPORTS

<table>
<thead>
<tr>
<th>DISCIPLINARY SANCTIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>INDIVIDUAL GRIEVANCES</td>
<td></td>
</tr>
<tr>
<td>COLECTIVE GRIEVANCES</td>
<td></td>
</tr>
<tr>
<td>CONCILIATION BOARDS</td>
<td></td>
</tr>
<tr>
<td>ARBITRATION</td>
<td></td>
</tr>
<tr>
<td>ABSCONDMENT</td>
<td></td>
</tr>
<tr>
<td>TRAINING/INFORMATION SESSIONS</td>
<td></td>
</tr>
<tr>
<td>SUSPENSIONS</td>
<td></td>
</tr>
<tr>
<td>SEXUAL HARASSMENT</td>
<td></td>
</tr>
</tbody>
</table>

NB!! Kindly submit a copy to the Labour Relations Officer for record purposes once a month.
Appendix I Health services business plan 2002/2003

HEALTH SERVICES BUSINESS PLAN FOR 2002/2003

8 October 2002 (Post IHMT of 7/10/2002)

1.1 Directorate’s Purpose Statement
To maintain & improve the health status of all communities in the City of Cape Town within the District Health System which includes:

- Promotive health services
- Preventive health services
- Appropriate curative services
- Environmental health services
- Specialised health support services

1.2 Directorate’s Strategy
- To achieve a healthy city for all we will:
  - Implement an effective, equitable municipal based District Health System in 8 districts with decentralised management and an overarching co-ordinating & support service
  - Implement an appropriate Primary Health Care service package

1.3 Directorate’s Key Challenges/Priorities
- Deal effectively with the HIV/AIDS & TB epidemics
- Manage the integration of CHSO and local government health services into an effective DHS
- Improve Child & Women’s Health
- Address equity across the city in health
- Become partners in an effective multi sectoral programme to combat violence and abuse, including addressing substance abuse.
- Develop adolescent/youth friendly services
- Improve & maintain quality of care & customer focus
- Deal effectively with developmental environmental health issues.
- Effective community involvement in health
- Develop service delivery partnerships

1.4 Directorate’s Desired Outcomes
- To contain the HIV prevalence in pregnant women to 18% by June 2006. (Would be 21% without intervention)
- To contain the TB incidence to 650/100,000 by June 2006. (Would be 750/100,000 without intervention.)
- Maintain the Infant Mortality Rate at 25/1,000 and the child mortality at 5.2/1,000 by June 2006.
- Equitable per user of the public health service funding, weighted by need, achieved by June 2006.
- An effective and efficient municipal based district health service by June 2004
- Reduce maternal mortality to <2/100 000 women by June 2006
- Work with other sectors to exceed 95% of households having access to basic services (water, sanitation & refuse removal) by June 2006.
- Improve immunisation coverage to 90% by June 2006.
## Appendix J: Joint priorities, indicators and targets

### Joint health priorities, indicators and targets (With amendments suggested by 28 May workshop and adopted by MDWEC on 24 June)

<table>
<thead>
<tr>
<th>Focus</th>
<th>Objective</th>
<th>Indicator</th>
<th>Cape Town Baseline</th>
<th>National Target</th>
<th>Cape Town Target</th>
<th>Frequency of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>To increase HIV testing coverage for population &gt;15</td>
<td>% tests of population &gt;15</td>
<td>4%</td>
<td>1% increase</td>
<td>Quarterly</td>
<td></td>
</tr>
<tr>
<td>PMTCT</td>
<td>To maximise HIV testing of antenatal attendees</td>
<td>% of antenatal attendees tested</td>
<td>78% (April 02 to March 03)</td>
<td>85%</td>
<td>Monthly</td>
<td></td>
</tr>
<tr>
<td>STI management</td>
<td>To ensure optimal STI management services</td>
<td>%</td>
<td>No of individuals treated</td>
<td>Target</td>
<td>5% increase on baseline</td>
<td>Monthly</td>
</tr>
<tr>
<td>Condom distribution</td>
<td>To maximise condom coverage</td>
<td>No of condoms per male &gt;15 distributed</td>
<td>10</td>
<td>50% increase on baseline</td>
<td>Monthly</td>
<td></td>
</tr>
</tbody>
</table>

### TB

<table>
<thead>
<tr>
<th>Focus</th>
<th>Objective</th>
<th>Indicator</th>
<th>Cape Town Baseline</th>
<th>National Target</th>
<th>Cape Town Target</th>
<th>Frequency of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection</td>
<td>To optimise TB case detection</td>
<td>Ratio of negative to positive smears (for TB suspects)</td>
<td>4.7</td>
<td>5</td>
<td>Quarterly</td>
<td></td>
</tr>
<tr>
<td>Care</td>
<td>To improve care roles</td>
<td>NTP cure rate</td>
<td>74%</td>
<td>85%</td>
<td>4% increase on baseline until &gt;85% (78% for Capetown)</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>

### Trauma and substance abuse

<table>
<thead>
<tr>
<th>Focus</th>
<th>Objective</th>
<th>Indicator</th>
<th>Cape Town Baseline</th>
<th>National Target</th>
<th>Cape Town Target</th>
<th>Frequency of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical trauma units</td>
<td>To ensure all 24 hour trauma units are functionally sound</td>
<td>% 24 hour units meeting criteria on standardised check list</td>
<td>To be determined</td>
<td>100%</td>
<td>Six monthly</td>
<td></td>
</tr>
<tr>
<td>Sensible drinking campaign</td>
<td>To roll out the sensible drinking campaign (to 3 additional sites)</td>
<td>% staff trained at all pilot sites</td>
<td>To be determined</td>
<td>90% of eligible staff at all pilot sites</td>
<td>Quarterly</td>
<td></td>
</tr>
</tbody>
</table>

### Chronic diseases of lifestyle

<table>
<thead>
<tr>
<th>Focus</th>
<th>Objective</th>
<th>Indicator</th>
<th>Cape Town Baseline</th>
<th>National Target</th>
<th>Cape Town Target</th>
<th>Frequency of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>To ensure optimal management of hypertensive clients</td>
<td>% of samples of fields reflecting correct treatment according to agreed protocols</td>
<td>To be determined</td>
<td>To be determined</td>
<td>Six monthly</td>
<td></td>
</tr>
<tr>
<td>Home care</td>
<td>To increase the number of category 2 clients on home based care</td>
<td>% of category 2 clients on Home Based Care</td>
<td>To be determined</td>
<td>To increase by 20% over baseline</td>
<td>Quarterly</td>
<td></td>
</tr>
<tr>
<td>Cancer prevention</td>
<td>To increase the % of women in the targeted women screened</td>
<td>% of women 30 - 59 screened</td>
<td>59%</td>
<td>5% increase on baseline</td>
<td>Monthly</td>
<td></td>
</tr>
</tbody>
</table>

### Infant mortality

<table>
<thead>
<tr>
<th>Focus</th>
<th>Objective</th>
<th>Indicator</th>
<th>Cape Town Baseline</th>
<th>National Target</th>
<th>Cape Town Target</th>
<th>Frequency of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunisation</td>
<td>To improve immunisation coverage</td>
<td>% under 1's who are fully immunised &lt;1</td>
<td>73</td>
<td>95% increase on baseline</td>
<td>Monthly</td>
<td></td>
</tr>
<tr>
<td>ANC</td>
<td>To reduce ANC refusals on other sites</td>
<td>% of births seeing children trained in ANC</td>
<td>N/A</td>
<td>100% of all births seeing children</td>
<td>Quarterly</td>
<td></td>
</tr>
<tr>
<td>Housing and sanitation</td>
<td>To improve access to adequate sanitation</td>
<td>No of informal dwellings without access to adequate sanitation</td>
<td>57630</td>
<td>To be determined</td>
<td>Six monthly</td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td>To improve community awareness and educate the community about proper hygiene practices</td>
<td>No of programme run on increasing community awareness and educating the community on proper hygiene practices</td>
<td>N/A</td>
<td>To be determined</td>
<td>Quarterly</td>
<td></td>
</tr>
<tr>
<td>Mental ill health</td>
<td>To prevent the occurrence of malnourished children</td>
<td>The incidence of children &lt;5 presenting with growth faltering/growth failure</td>
<td>Data of poor quality</td>
<td>To be determined</td>
<td>Monthly</td>
<td></td>
</tr>
</tbody>
</table>

### PHC integration

<table>
<thead>
<tr>
<th>Focus</th>
<th>Objective</th>
<th>Indicator</th>
<th>Cape Town Baseline</th>
<th>National Target</th>
<th>Cape Town Target</th>
<th>Frequency of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental ill health</td>
<td>To increase the number of mentally ill clients integrated into PHC</td>
<td>No of stable mental illness clients successfully integrated into primary health care services</td>
<td>To be determined</td>
<td>To be determined</td>
<td>Quarterly</td>
<td></td>
</tr>
</tbody>
</table>
Appendix K: Fieldwork log in Cape Town

CAPE TOWN Oct/Nov 2003 – log of meetings, supervisions, observations and interviews
Arrival: Tuesday 30.9. - return Sunday 30.11.

Wed 1.10. Gavin: introduction to UWC and SoPH
Thu 2.10. Waiting-time survey – feedback to the managers
Mon 6.10. Gavin (+ A-K/E): planning, making appointments with key people
Tue 7.10. Meeting PAWC with Lorna / Zelda. Provincial Authorities
Wed 8.10. Meeting CoCT (City of CT) with Hassan Mahomed. Local Authorities
Thu 9.10. HISP/PhD seminar
Fri 10.10. “ seminar
Fri 17.10. Data Quality Workshop with Lorna Solomon at Oceans View CHC
Mon - Wed Working on a proposal for my fieldwork + interview guide (managers) –
e-mails Judith, discussing sampling and methods,
Thu 23.10 Judith: feedback on the fieldwork proposal
Thu 23.10. Gavin: feedback on the fieldwork “package” and info on the MRIO
Mon 27.10. CoCT/Tygerberg Adm: Sub-Dist Managers (and Environm): Quarterly Review
Tue 28.10 Gavin: supervision on criteria for selecting facilities, letter to the managers ++
Thu 30.10. Gavin: last discussion on phone, “package” approved and sent to Judith,
Hassan and Lorna.
Fri 31.10. Judith: feedback on letter, a few changes, e-mailed to Hassan and Lorna
Wed 5.11. Observation Kasselsvlei CHC
Thu 6.11. Observation Maitland Day Hospital
Mon 10.11. Lorna: short discussion on selection of facilities.
Tue 11.11. Interview Kasselsvlei CHC
Wed 12.11. Observation Diep River Clinic
Thu 13.11. Interview Maitland Day Hospital
Fri 14.11. Township – diff Projects
Tue 18.11. Observation Khayelitsha Site B Clinic
Thu 20.11. Interview Diep River Clinic
Fri 21.11. Workshop Woodstock. PAWC – “Inform. for action” with Clinic Managers
Tue 25.11. Observation Uitsig Clinic
Wed 26.11. Interview Khayelitsha + Meeting with Gavin
Thu 27.11. Interview Uitsig
Fri 28.11. Meeting Gavin: summary