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The District Health System Experiences and Prospects in Africa

Manual for Public Health Practitioners

The District Health System

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Editorial

The idea to publish a second and updated edition of the manual on the district health system (DHS) in Africa emerged when even the reprints of the first edition of 1993 had sold out, demonstrating its popularity and continuing relevance. Undoubtedly, the district health system is still the core piece of health system development, and with the decentralisation trends apparent in many countries, it has continued to increase in importance. The manual is intended to support those on the ground who are involved in the reform of health systems in general or in attempts to improve the district health systems in low-income countries, particularly in Africa.

GTZ is strongly committed to health system development and has been supporting the implementation of district health systems in about 20 countries in Africa for the past 20 years. The manual is based on the rich experience of its collaborators gained on the African continent. However, this does not mean that district health systems are only appropriate for Africa. Districts also play a key role in the national health systems of Latin America and Asia. The manual's focus on Africa is due to the fact that it is the most neglected continent, permanently hit by socioeconomic crisis and epidemics and therefore in obvious need for stronger support than other continents.

All in all, 18 authors have made contributions to the manual based on the experiences they personally gained in projects and programmes run by GTZ in Africa. Many more colleagues, both Africans and Europeans, have worked on these projects and programmes and could have contributed as well. The large number of authors indicates how deeply GTZ has been and will continue to be involved in the development of appropriate health systems that provide good quality services within the limited resources available. The manual can be considered as GTZ's collective experience in the field of district health system development.

To coordinate 18 authors in jointly writing a manual is unquestionably a complicated process that takes much time. We started more than two years ago. Despite our common understanding and agreement on the main strategies and concepts of public health, individual opinions differed on numerous details, resulting in long discussions before a consensus could be reached. Nonetheless, some inconsistencies may remain and in view of the ongoing inter-

national experience gained with new approaches and methods, it would be useful to update the manual on a regular basis. Thus, the manual cannot and does not aspire to provide a comprehensive overview of all the concepts and strategies to be applied in a district health system. Our aim is to cover the main priority areas, but we believe that the manual leaves space for differing positions and may even provoke controversial discussions. As long as the resulting debates contribute to strengthening the district health system development these are more than welcome.

The manual is targeted at all those who are involved in conceptualising the DHS and in implementing these concepts as well as those who assist this process both in the country and internationally in the context of development cooperation. We propose to call this target group 'public health practitioners'.

The manual's character is in line with the envisaged target group. It is not a scientific textbook about various public health strategies and concepts. Rather, it attempts to outline what is needed to implement a well functioning district health system. While this includes concepts based on scientific evidence that are needed for the understanding of a DHS, the manual focuses on the necessary skills and operational methods that are useful and recommended for the successful implementation of these concepts. In brief: conceptual understanding comes first, followed by a discussion on implementation which aims to provide guidelines rather than recipes for action.

The editing of the manual was financed with funds from the German Federal Ministry for Economic Cooperation and Development (BMZ) that are earmarked for the dissemination of experiences made (lessons learnt) by German institutions involved in development cooperation. To facilitate the international distribution the manual will be given an ISBN registration.

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Helmut Goergen, Thomas Kirsch-Woik, Bergis Schmidt-Ehry
February 2004

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Foreword

By Assia Brandrup-Lukanow, Director Division of Health, Education, and Social Protection
GTZ Head Office, Eschborn

Over the last two decades, the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) has been implementing programmes and projects on health systems development and the strengthening of district health systems. This work is based on the strategic and policy decisions of the German Government, which funded these programmes as part of its commitment to international development assistance to the world's most needy countries.

The strengthening of district health systems is an essential step in making health services accessible and affordable for the population groups who would otherwise be unable to reap the benefits of health promotion, good quality health care, and access to essential drugs.

In this book, 16 colleagues who have personally supported these programmes with their knowledge and expertise reflect on their experiences and the opportunities and obstacles encountered. Finally, they make recommendations as to the best way forward.

This manual provides guidance for national and international policy-makers, but also and above all, for health care planners and providers in the field. Although the topic of district health systems, once fashionable in the development debate, has lost some of its high profile, it should not be forgotten that quality management, as it is understood today, cannot take place in a vacuum, and that particularly in sub-Saharan Africa, the district health system provides the platform to perform and implement quality management, as well as for offering sustainable models of health care financing in resource-poor settings.

It is our hope that through its suggestions as to how to strengthen health systems this book will be a contribution to the future challenge of achieving the Millennium Development Goals: fighting the diseases of poverty, HIV, tuberculosis and malaria, improving reproductive health and improving the health of children, women and men in Africa.

We would like to thank all our colleagues in the national institutes for their contributions to this manual.

Assia Brandrup-Lukanow

Foreword

By Hans-Jochen Diesfeld, Professor and former Director of the Institute of Tropical Hygiene and Public Health of the University Heidelberg (1976–1997).

The first edition of *District Health System - Experience and Prospects in Africa* was published in 1994 in German, English and French, and rapidly became a useful guide for planners, organisers and implementers of district health services.

As a basic document for public health practitioners, it has been an important catalyst in discussions within and between national and international health service professionals at all levels. It has become an essential basic reader, both for lecturers and for post-graduate students of national and international courses, such as those offered by myself as the former Head of the Department of Tropical Hygiene and Public Health at Heidelberg University, Germany. The relevant and practical examples from the field have been extremely useful in DHS teaching modules.

This new, fully revised edition, expanded to take account of international developments and experience gained over the last ten years, is thus very welcome.

Much water has since flown down the rivers of Africa, and the PHC concept and its pros and cons, failures and successes have been hotly debated. Since 1978, PHC has been criticised frequently, distorted and twisted, even given up for dead on occasion.

But whatever new ideas have emerged, the core principles and elements of PHC are more relevant than ever. PHC is, and always has been, a health-oriented development concept. This has made it more vulnerable to overall development failures and political and economic setbacks than any autonomous, vertical health programme. However, this does not detract from the intrinsic value of the PHC philosophy. The overall concept of the manual follows the basic principles established in 1978 at the Alma-Ata International Conference on Primary Health Care, and tracks the way this concept has evolved to the present day.

All new attempts to improve district health services, through health sector reform, sector-wide approaches, decentralisation and other efforts based on trial and error can shed light on this development process.

The value of the various chapters lies in the critical evaluation of these attempts within the context of PHC, in the light of past experience, present trends and future needs. The authors are highly experienced and committed to the concepts of public health, international cooperation and partnership.

Each chapter is self-contained and yet fully integrated into the overall concept of the manual. There is a positive feedback effect, and interaction between the chapters without redundancy.

It is encouraging to see that under new health sector reform and decentralisation efforts, the concept of PHC and its evolution is still very much appreciated, in contrast to the close-to-client concept advanced in the WHO's 2001 Report of the Commission on Macroeconomics and Health, which does not mention PHC, and tries to reinvent the wheel.

Please permit me one last personal remark. As a former academic, teacher of the concept of PHC and scientific collaborator who has worked with several of the authors of this publication, it is a great honour and a pleasure for me to have been asked to pen the introduction to this updated and well-written second edition.

I am sure that this manual will receive at least as much attention as the first edition did.

Hans-Jochen Diesfeld

Foreword

By Rolf Korte, former Director of the Division of Health, Education and Social Protection at GTZ Head Office from 1982–2002.

When government and in some regions faith-based health services began to emerge about a century ago they covered only a fraction of today's population. Taking Kenya as an example the population was a mere 4.5 million in 1910. Out of this relatively small population many were socially, financially and geographically excluded from the available services. Today a total population of more than 30 million demands universal access to appropriate services. Up to this day Ministries of Health manage services for whole countries from the capital. Financial, supply and human resources management are still highly centralised. This approach was justified in the early days of health service development as probably the most feasible approach because of the relatively small size of the service.

During the colonial period some countries in Africa already developed some degree of decentralisation, e.g. by charging district councils with the management of ambulatory care. With independence decentralisation was, however, often reversed for the sake of national unity in the emerging nation states. Today the centralised management of a health system for tens of millions of people is an impossible task. But there are other reasons to promote decentralisation. With the proclamation of the principles of primary health care (PHC) in Alma-Ata 1978 the need to take services closer to the people became, at least in principle, a goal for many health services. In 1983 WHO formulated the district health policy in Harare to promote coherent health services closer to the people.

Decentralisation has since become a major managerial principle in health services, but progress towards this goal is much slower than expected in spite of the seemingly obvious advantages. The slow progress has two underlying causes: first, the ubiquitous reluctance of managers in centralised organisations to share or effectively delegate power to a lower level. Second, the real or perceived incompetence of the district staff to take charge of hitherto centralised functions. In many instances at least partial decentralisation is implemented by delegating the authority for ambulatory care to the district authorities. The district hospital is, however, still con-

sidered by many national authorities to be too complex a task to be managed at this level. This undermines the principle of a unified district service, with the district hospital and its more complex curative services in the district centre and health centres, dispensaries and community workers providing primary care. A functioning district health service needs the integration of primary and first referral level.

Yet it should also be realised that in the last twenty years, since the initiation of the district focus, many conditions have changed and new developments have to be taken into account. Rapid population growth has led to the sub-division of districts. This leaves some districts without the service of a hospital within their boundaries. At the same time quality concerns suggest that clinical units must have a minimum size and number of patients per year to foster appropriate staff skills. Similarly the improved mobility of patients, at least in some regions, may allow for a certain re-concentration of competence in centres of excellence. On the other hand even districts may become too large to manage and a sub-district management structure may have to be developed to assure proximity to and ownership by the people. At the same time private and not-for-profit health care provision has at least in some areas become an important factor, which must be considered in the district resource planning process.

Crucial factors for the successful operation of district services are:

- Financial autonomy
- Responsibility for staff recruitment and development, and
- Adequate infrastructure and technical skills.

This manual compiles experiences from many countries, mostly in Africa, to strengthen the capacity of districts for the provision of efficient and effective district health services.

Rolf Korte

Abbreviations

ARTAG	Appropriate Health Resources and Technologies Action Group (now Healththink Worldwide)
AMO	Assistant Medical Officer
AMREF	African Medical & Research Foundation
ART	Treatment with anti-retroviral drugs
CBD	Community-based distribution
CDC	Center for Disease Control
CEDHA	Centre for Educational Development in Health
CM	Centre Medical
CMA	Centre Médical avec Antenne Chirurgicale (= small hospital)
CME	Continuing Medical Education
CMML	Christian Mission in Many Lands
CMS	Central Medical Store
CRAC	Regional Support and Advisory Group (Togo)
CSPS	Centre de Santé et Promotion Sociale
CSSC	Christian Social Services Commission
CYP	Couple years protection
DALY	Disability-adjusted life years
DED	Deutscher Entwicklungsdienst (German Development Service)
DFID	Department for International Development (UK)
DHMT	District health management team
DHS	District Health System
DMO	District Medical Officer
DP	Disaster preparedness
DRF	Drug Revoting Fund
D+T	Diagnosis and treatment
DTP3	Diphtheria-Tetanos-Pertussis 3 (vaccination)
EFQM	European Foundation for Quality Management
ENT	Ear-nose-throat
EPI	Expanded Programme on Immunisation
EU	European Union
EUR	Euro
FLHS	First-line health services
FP	Family planning
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)

HC	Health centre
HF	Health facility
HMIS	Health management information system
HSR	Health sector reform
HTM	Healthcare Technology Management
IEC	Information-Education-Communication
IFRC/ICRC	International Federation/International Committee of the Red Cross
IMCI	Integrated Management of Childhood Illnesses
KCMC	Kilimanjaro Christian Medical Centre
MCH	Master of Community Health
MD	Medical Doctor
MO	Medical Officer
MoH	Ministry of Health
MPH	Master of Public Health
MSF	Médécins Sans Frontières
NGO	Non-governmental organisation
NHIS	National health information system
NHA	National Health Accounts
PAD	Protocols for Appraisal of Physical Assets Management in Health Services in Development Economies
PAM	Physical Assets Management
PATH	Program for Appropriate Technology in Health
PBL	Problem-based Learning
PH	Public health
PHC	Primary health care
PMTCT	Prevention of mother-to-child transmission
PPM	Planned Preventive Maintenance
PV	Photovoltaic energy
QALY	Quality-adjusted life years
QM	Quality Management
RAM	Recycling, avoiding, minimising
RMO	Regional Medical Officer
STD	Sexually transmitted diseases
SWAp	Sector Wide Approach
TALC	Teaching Aids at Low Cost (UKNGO)
TBA	Traditional birth attendant
TH	Traditional healer

TropEdEurop	Modular MPH in International Health from different Institutes of Tropical Medicine in Europe
UACOGEC	Management Committees Support Unit (Benin)
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UoDSM	University of Dar es Salaam
UoN	University of Nairobi
USAID	United States Agency of International Development
USD	US dollar
VCT	Voluntary counselling and testing
WHO	World Health Organization
WHO-EHA	WHO Department of Emergency and Humanitarian Action

1. The Concept of the District Health System (DHS)

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Geographical accessibility continues to be a major problem, particularly in rural areas (Rwanda)

1. Relevance of the District Health System

More than 25 years after the 1978 Alma-Ata International Conference on Primary Health Care¹, PHC remains central to the health policy of most African countries. This is true even though the WHO's ambitious goal of 'Health for all by 2000', which was to be achieved with the help of PHC, has long since been shelved. Despite the difficulties of translating the PHC strategy into practice, the fact remains that in the current socioeconomic circumstances there is simply no realistic alternative if the whole population is to be provided with basic health care, especially in rural areas. As a matter of public interest, governments remain in charge of organising an affordable health system, which offers a wide range of services of an acceptable quality (rather than merely vertical special-focus programmes). This health care system needs to be accessible to the entire population, including the destitute, for whom special rules should apply.

Major efforts have been undertaken by the international community to implement the PHC strategy, with numerous projects and vertical programmes. Yet, within a few years, most of these proved to be inefficient, non-sustainable, and in some cases even counter-productive to the efficiency of the local horizontal health services. Finally, it became clear that selective vertical approaches (i.e. focusing on one specific disease or on family planning) resulted in short-term successes only. They were unable to ensure the sustainable implementation of the PHC strategy. The concept of primary health care calls for services to cover the entire spectrum of preventive and curative medicine. This can only be provided within the framework of an integrated health care system, an objective that cannot be achieved overnight, but offers far more sustainability than any fast-track programme.

The district health system provides the best chances of implementing PHC as laid down in the Declaration of Alma-Ata. This finding was incorporated in the 1987 Harare Declaration, signed by representatives of 22 African countries, which is as valid today as on the day it was adopted.

¹ The primary health care (PHC) strategy was adopted worldwide in 1978 under the aegis of the WHO.

Primary Health Care means:

Community involvement and the use of local human and physical resources to provide a range of curative and preventive services and health promotion measures that are both accessible to and affordable for the local population.

Primary Health Care embraces eight elements:

- Health education
- Food supply
- Drinking water supply and sanitation
- Maternal and child care, including family planning
- Vaccinations
- Endemic diseases
- Miscellaneous diseases and injuries
- Essential drugs supply.

Primary Health Care is geared to the following guiding principles:

- Maximum accessibility
- Utilisation of local resources
- Involvement of the target population in planning and implementation
- Integration of preventive and curative services
- Rationalisation of the health services (appropriate technology, financing and management).
- Inter-sectoral cooperation.

Primary Health Care is not limited to:

- Simple measures (e.g. rehydration and preventive measures)
- Promotion of village health workers and community development
- Activities at the lowest level of health care (dispensaries, etc.).

Primary Health Care also includes the referral hospital.

One may object that in recent years “Poverty Reduction” and “Millenium Development Goals” have been the overarching strategies for health care. However, the analysis of these strategies points out that they are fully in line with the concepts and principles of



WHO's slogan 'Health for all by the year 2000' – modified in a particular way (Benin)

PHC; to some extent they are adjusted to current expectations and perspectives.

Critics of the district approach point, not without justification, to the persistently poor quality of many health services, especially state services, in most countries of sub-Saharan Africa. However, the reasons for this tend not to be technical or conceptual in nature. The shortcomings of the systems are rather a reflection of the challenges faced by the society in which they operate: socioeconomic crises, political mismanagement and corruption at every level of society. In public services in particular, and the health service is no exception, these factors have led to appalling mismanagement and lack of commitment resulting in a drastic drop in the quality of services provided.

Given these circumstances and the limited success of the wide range of public health activities carried out to date, the discussion returns time after time to shifting the focus back to hospital-based care. If attention were focused on hospitals it would be possible, goes the argument, to achieve an acceptable level of health care in one (large) institution at least.

Experience shows, however, that hospitals that serve a large number of outpatients and thus have to operate as large-scale health centres become inefficient as staff and other resources must increasingly be dedicated to tasks that a hospital should not normally be expected to undertake. As a result the hospital's core tasks are performed with ever decreasing efficiency. At the same time, the peripheral services are used less and less frequently, and are actually weakened rather than being strengthened from the district and/or regional level levels. In the final analysis it is particularly the rural population, which often accounts for between 60 and 80 per cent of the total population, that loses out. This is totally unacceptable in terms of strategy and health policy.

There is no realistic way of replacing the comprehensive, integrated district health system (DHS). What is needed to ensure the desperately needed qualitative improvements to the DHS, is an integrative, inter-sectoral reform policy for the system as a whole.

Another approach might be to encourage non-state service providers as an alternative to the crumbling public services. Such an approach would appear to be expedient, since there is little hope that the state services will be able to master the current crisis in the foreseeable future. It is worth noting here that many more developed countries, in particular industrialised countries, have put their primary health care services mainly in the hand of non-state service providers.

For many years now it has been clear that centralised health systems are no longer in a position to provide even the minimum of care required at all levels, and that major planning and managerial authority should be delegated to decentralised bodies. The district level has a vital part to play in this new structure.

The integrated district health system offers the following major advantages over a centralised system:

- It is *large enough* (in business terms) to justify the investment and management costs, especially in hospitals (good cost-benefit ratio).
- It is *small enough* to be familiar with the relevant demographic and socioeconomic factors, and able to take these into account.
- *Participatory planning and organisation* are more feasible at this level.
- *Communication* with target groups is easier because of the geographical proximity.

- *Management* (e.g. supervision) is less complex and thus more effective.
- It is easier to *coordinate* various programmes and services at different levels.
- *Inter-sectoral cooperation* is easier, in particular with the agricultural, education, water and waste disposal sectors.

Like every other health care system, the DHS can be assessed using a grid and a logical approach which are widely used in planning and evaluation exercises.

Criteria when assessing a health system for coherence²

- **Relevance** of the services in terms of quantity, technical level and problems experienced by the target groups
- **Availability** of resources to provide appropriate health care
- **Accessibility** of the services (geographical accessibility and affordability)
- **Quality** of the health care in the eyes of the experts and of the population
- **Acceptance** of the services offered on the part of users

2. Structure of the Integrated DHS

The DHS is part of the National Health System and generally covers one district – an administrative unit that is home to between 50,000 and 300,000 people³. The Head of District is usually appointed by the Government, whereas the members of the district council are, for the most part, elected representatives of the community. Depending on the degree of decentralisation, the district council may be wholly responsible for health care in the district.

Within the administrative structure of most African countries there is a regional level above the district level. Depending on the colonial history of the country, this level is sometimes known as provinces, departments or prefectures. One region consists of several districts. Formerly, the regional administration was superior to the district council in all matters, but gradually, in the course of

² After T. Tanahashi, WHO, Division of Strengthening of Health Services (1978).

³ Where districts have many more inhabitants (e.g. in Rwanda), they should be subdivided.

Support services to be provided by the regional administration to support DHS

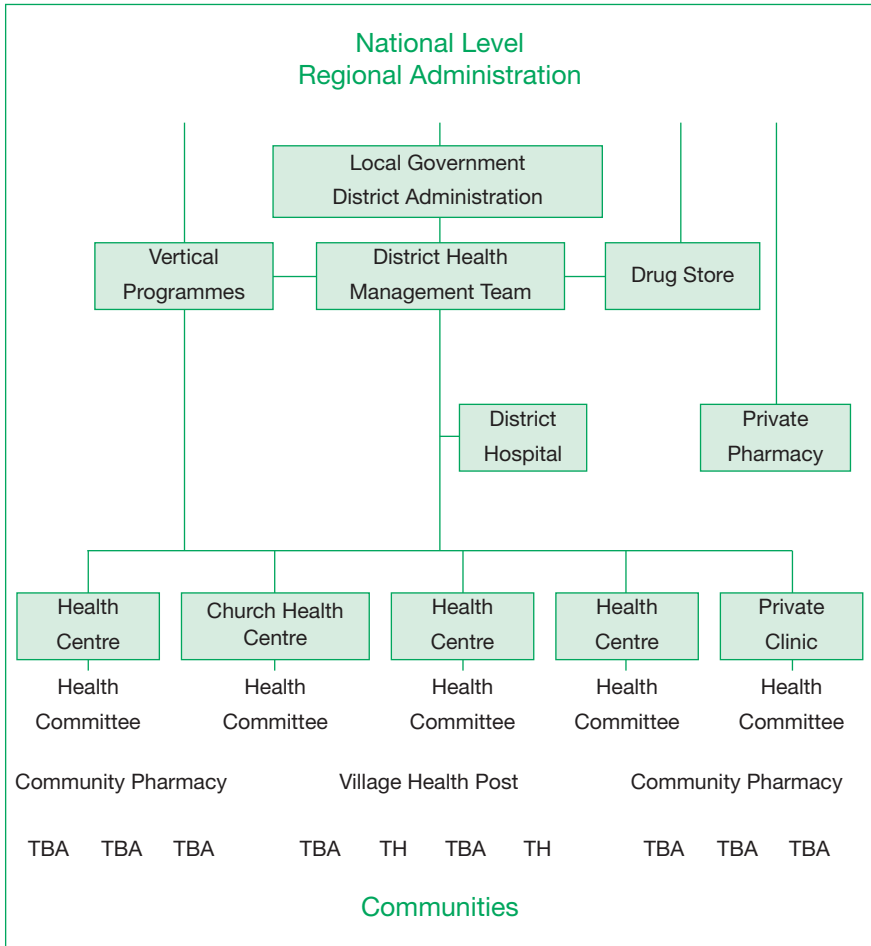
- Assigning personnel to districts of the region to overcome the urban-rural inequities
- Staff training and running a regional or zonal training centre
- Human and institutional capacity-building for decentralisation
- Quality management
- Introduction of sustainable maintenance systems
- Disaster preparedness programmes
- HIV/AIDS control
- Operational research

decentralisation, the district level was granted significant decision-making authority. However, the regional level retains a major role in the implementation of national health policy, quality control as well as coordination and support of the districts, even if it is no longer solely responsible for the budget. Strong districts are unquestionably an important element of decentralisation. Nonetheless, it should be noted that many tasks can be managed more effectively and more efficiently at the regional level. For instance, it makes more sense to organise programmes such as staff training, maintenance or HIV/AIDS control at this level (for further details see Box 'Support Services provided by the Regional Administration'). The DHS embraces all the facilities and individuals in a district involved in providing health care at various levels of intervention, not only state providers, but also church, community and private providers. In principle, traditional healers are also part of the system, although there are few instances of cooperation between them and the other parts of the DHS as a result of their widely divergent views on the causes of diseases and how best to treat them⁴.

⁴ In general terms, traditional medicine is based on a very different philosophy of sickness that distinguishes it from "modern" scientific theory. According to traditional medicine, sickness is mainly a result of the (mis)conduct of the patient and his/her relations to others, rather than being connected to micro-organisms in the environment. Traditional healers, who consider supernatural factors to be responsible for most health problems, are generally consulted first when someone falls ill. The effectiveness of the treatment of major health challenges they provide (e.g. malaria or complications during childbirth) is, however, dubious.

1 The Concept of the District Health System (DHS)

Figure 1: The district health system. Lines designate functional links (not hierarchy). This is only one possible structure, and many variations are conceivable. TBA = Traditional birth attendant, TH = Traditional healer



The DHS is responsible for providing primary health care, i.e. organising a minimum package of curative and preventive services in line with national health policy to respond to the health problems and needs of the local population.

Within the DHS we distinguish between the primary and secondary levels that have to be supervised, coordinated and sup-

ported by a management body. However, the system also comprises village and community-level activities as well as vertical programmes, thus rendering the overall structure significantly more complicated and complex.

The primary level comprises all health centres, dispensaries and similar facilities in the communities with qualified staff such as nurses and midwives, but no doctors.

The secondary level refers to all first referral hospitals (for all services at primary level). Generally, there is an official district hospital, and sometimes smaller, mostly non-governmental hospitals. Unfortunately it is rare to find any organised form of cooperation between the hospitals in a district⁵.

The referral system is intended to ensure an operational link between the two levels, which demands advanced logistics (vehicles, communications technology such as radios, telephones or mobile phones and an appropriate reporting system). The enormous cost of maintaining this system is generally prohibitive, and indeed, when resources are so scarce, the system can only be justified if effective controls (e.g. by the community council) ensure that ambulances, for instance, are used for their intended purpose.

The costs of transporting patients from one facility to another are often extremely high, and if the patient is charged for the full amount it is likely that he/she will either refuse to be transferred or that loss of time over the resolution of the payment issue results in the patient's life being put at risk. Subsidies or cost-sharing schemes are needed to avert this danger. Ideally, health insurance schemes should cover the costs.

Primary-level health services transfer patients whose condition demands technology or skills not available at primary level to the referral hospital. Under optimum conditions, however, up to 85% of all patients can be treated at primary level. A very small number (some 4%) of the 15% referred to a hospital subsequently require special treatment available only in special hospitals at national level⁶.

⁵ In Tanzania, the state worked together with the church to develop a promising joint programme ('Sharing Responsibilities') – see report CSSC 2002.

⁶ Percentages are based on estimates made in Kasongo, Zaire (Project of the Antwerp Tropical Institute) and in various GTZ-assisted projects.



Mother-and-child-related health problems account for 70% of all health care provisions (Tanzania)

At village and community level there are often health-related initiatives (e.g. village health posts, village health workers, traditional birth attendants, health committees, youth and social centres and alongside these the traditional healers), which require the support of the nearest health centres and dispensaries.

In spite of the negative experiences that many countries have had with village health posts and workers, it may be useful to continue this approach in areas without health facilities where the local community is committed to support community-based initiatives.

In some countries (e.g. Malawi with its health surveillance assistants) specially-trained staff are responsible for outreach work, such as vaccination programmes, water supply and sanitation measures and hygiene education. The commitment of community members is vital if programmes of this kind are to be successful.

The district health management team (DHMT) should always be headed by a doctor with public health qualifications⁷ and

⁷ The most appropriate training available is a one-year Master of Public Health course.

should comprise at least one administrator, one experienced nurse and the senior physician from the district hospital. Representatives of non-governmental organisations working in the district should also be part of the team. (For more details see the chapter on “Planning and Management” below). The DHMT plans and budgets for the activities needed to manage, control, coordinate and support all health services in the district on a year-to-year basis. Although extremely difficult, it is of paramount importance that this process considers all sources of funding and all district activities – especially externally-funded projects and institutions – to provide transparency and prevent unnecessary duplication.

All non-governmental health services including pharmacies should be involved in the planning process and in all support activities whether they are church, community or private providers.

Vertically-organised health programmes such as vaccination programmes, family planning, and AIDS, TB and malaria control tend to be organised and conducted nationwide. Given the high costs and lack of sustainability of many vertical programmes, it seems undoubtedly useful to integrate them into “horizontal” health services, provided adequate logistic and financial preconditions exist and appropriately trained staff are available. However, forced integration of vertical programmes can be disastrous, as demonstrated by the considerable drops in previously high vaccination rates in some countries (e.g. Tanzania). It is therefore reasonable to retain vertical programmes if it seems improbable that conditions at district level can be significantly improved in the foreseeable future.

On the other hand, better equipped vertical services should never become competitors of worse-equipped primary and secondary care facilities. If this happens it always indicates a misallocation of resources, which calls for immediate correction.

3. Facts, Figures and Standards

There is an optimum size for a well-functioning district health system. Given the huge rates of population growth, these figures should be known and taken into account in political, planning and managerial decisions.

Table 1: Planning data on the basis of average figures for a health district. The figures have been taken from different projects, and deviations are possible on the ground. The data given here should serve only as an example.

Scope

- Hospital: 1 bed per 1,000 inhabitants of the health district
- 1 health centre/dispensary per 6,000 inhabitants in rural areas, and per 10,000 inhabitants in urban areas.

Accessibility

The distance to the closest health centre/dispensary should not exceed 5 km (or 10 km in particularly difficult regions).

Personnel (minimum)

- Hospital (200 beds): minimum of 3 doctors, nursing staff ratio of 3:1 (beds: nursing staff), administrators (1 accountant), 1 trained hospital technician
- Health centre/dispensary: 1 nursing officer (with 4-year training) as team leader, 1 midwife (with 3-year training), 1 nurse attendant or social worker, 1–2 auxiliary staff members
- District health management team: 1 doctor trained in public health as the team leader, 1 top-level nursing staff member, hospital director, 1 person for mother and child matters, 1 accountant.

Utilisation

- Outpatient care: 1 case treated per patient per annum
- Occupancy rate of hospital beds: 70–80%
- Percentage vaccination coverage: more than 80% (extended vaccination programme for young children)
- Utilisation of modern methods of family planning: 40% or more in the medium term
- Percentage deliveries with medical assistance: over 60%

Expected workload per annum (e.g. health centre/dispensary serving a population of 6,000)

- 6,000 new cases (general outpatient care) per health centre/dispensary (assuming one case treated per capita per annum, rate of utilisation: 1.0)
- 135 deliveries with health service assistance (assuming a birth rate of 45/1,000, 50% home deliveries)
- More than 600 antenatal consultations (assuming a mortality rate of 10%, an average of 3 consultations per pregnancy, rate of utilisation: 0.8%)
- More than 900 consultations for babies/vaccinations in infants' first year of life (assuming five consultations/vaccinations)
- 504 consultations on family planning issues (assuming 40% of all women aged between 15 and 49 consult the services, i.e. = $6,000 \times 0.21 \times 0.4$).

Weekly workload of a health centre/dispensary

Assuming a utilisation rate of 50% (curative treatment), 80% (antenatal care), 20% (family planning):

58 new cases	($6,000 \times 0.5 : 52$)
14 antenatal consultations	($900 \times 0.8 : 52$)
26 infant development checks	($300 - 10\% = 270 \times 5 : 52$)
5 family planning consultations	($6,000 \times 0.21 \times 0.2 : 52$)

The optimum district health system serves a population of between 200,000 and 300,000⁸. When planning a DHS on this basis, planners must take into account the fact that in most African countries the population of a given area will rise by about 50% over a 15-year period.

Given a target population of this size, the district hospital should have a minimum of 200 beds. A reasonable ratio is one bed per 1,000 inhabitants⁹. Hence, in this example, a second, smaller hospital with 100–150 beds would also be justified.

There should be between 20 and 50 health centres at primary level, depending on the human resources available and on the population density.

4. Sharing of Responsibility within the DHS

To ensure the provision of optimum care by using resources as rationally as possible and by avoiding unnecessary duplication it is vital to specify the responsibilities of the various facilities and levels of care.

A smoothly functioning referral system is the precondition for cooperation between the various levels of the health system (community initiatives – health centres – district hospital).

A detailed job description should be available for every position, and each member of staff should be given a copy of their own job description.

Also, standardised diagnosis and treatment guidelines should be implemented, laying down criteria for the referral of patients to the next level of care (e.g. a child with a serious infection or severe malnutrition).

A distinction can be made between the following duties:

⁸ All following figures refer to this optimum size of a district health system.

⁹ These figures are based on the work of Dr. Pridie, Chief Medical Officer in the British Colonial Office in London, who made far-reaching proposals for the health services in the colonies as far back as 1949.

Health Centre/Dispensary

- Curative care of acute and chronically sick patients who do not require a doctor (ideally up to 85% of all cases)
- Antenatal care
- Obstetrics
- Family planning
- Infant care including vaccinations and development checks
- Community development (primary disease prevention in particular as regards drinking water, disposal of solid waste and waste water, medical back-up for traditional birth attendants, village health workers, social workers, youth initiatives)

District Hospital

- Treatment of outpatients and management of emergencies
- Surgery (moderately complex surgery in the fields of obstetrics, general surgery, traumatology, urology)
- Treatment of serious internal and pediatric cases
- Technically complex diagnostics (radiology, ultrasound, laboratory)
- Training and upgrading (especially for other district staff)
- Collaboration on both clinical and public health studies and operational research
- Collaboration on the supervision of health centres/dispensaries
- Technical services and maintenance (for the entire district)

District Health Management Team

- Planning and management of the DHS including financial planning
- Personnel assignment and further training
- Management of physical resources including procurement of drugs, medical supplies and equipment
- Organisation of supervision
- Responsibility for the uninterrupted supply of drugs
- Coordination of studies and operational research
- Inter-sectoral cooperation

5. Decentralisation

For several years now it has been the declared reform policy of low-income countries to decentralise the administration in most sectors¹⁰. This political u-turn away from a more centralised system is in part a response to the past failures of centralised government decision-making, which has all too often gone hand in hand with corruption. It is hoped that further-reaching decentralisation of decision-making authority in the health sector, as in other areas, will increase citizen involvement resulting in greater social justice and a more effective health care system.

Quite apart from the aspect of democratisation, it is assumed that the breakdown of the national health sector into operational sub-units (health districts) will boost quality and bring efficiency gains. As budgets shrink there is much to recommend this approach.

- Decentralised financial planning is more efficient, since precise information on the resources required (e.g. staff, drugs, transport, renovation work, etc.) is more easily available at local level. By contrast, in a centralised system the districts are seen as homogeneous units and too little attention is paid to their specific geographic, cultural and economic characteristics. As a result many resources are wasted.
- The proximity of the control body allows for improved financial control and budgetary management, making it easier to prevent the misuse of resources.
- Performance improves when the supply of necessary inputs is reliable, and when both controls and technical support services are stepped up thanks to greater proximity.
- Finally, increased client focus has been shown to improve the performance of the health system, which in turn pushes up the demand for services. The resulting boost to the revenue of the health services helps to underpin the sustainability of improvements.

At present, no convincing factual arguments speak against this sectoral reform. Resistance to decentralisation is thus mostly polit-

¹⁰ The pressure exerted by international financing institutions and development cooperation on national governments, which are often more than reluctant about decentralisation, cannot be denied.

ical in nature, since decentralisation always means a shift in power from national to regional level. This resistance, especially on the part of the ministries affected (Ministry of Finance, Ministry of Health and the Ministry responsible for administration, as well as the Ministry for local government) frequently takes the form of delays in the process of legalisation. Endless revisions can result in the reform being watered down to such an extent that all that is left is deconcentration, rather than the originally intended devolution.

It is, however, important to recognise that often the technical, political and administrative preconditions do not exist at the level to which authority is to be transferred. If the human resources capacity, management expertise and genuine involvement of the population must first be created at the lower level, a premature transfer of decision-making authority can prove to the detriment of all parties involved.

One crucial factor is the quality of the new regulations and instruments of decentralised administration (i.e. their scope and effectiveness); another is the speed of implementation in terms of the requisite human resources and their ability to perform their new tasks competently and reliably.

The competence and the commitment of the local government are of absolutely paramount importance to the success of decentralisation. It can do much to accelerate the process by conducting

What do the four “D”s mean?

Decentralisation is the transfer of central government powers, i.e. decision-making authority in the fields of planning and management, to a lower level. Three distinct forms can be identified:

- **Deconcentration:** The transfer of central administrative functions but not of decision-making authority to the periphery or lower levels.
- **Devolution:** The transfer of important decision-making sovereignty to lower levels of government (e.g. a community council).
- **Delegation:** The transfer of managerial responsibilities of government to an independent controlling body, such as an NGO.



Decentralisation: district authorities need to understand the new tasks and responsibilities (Tanzania)

solid education work and training staff members affected within the district and local administrations, the health services and the district council.

Decentralisation within the district means first and foremost greater community involvement in the organisation and financing of the health services in the community in question. Relevant regulations are essential, and can be drawn up by a management committee. The community should then implement them rigorously, with the support of the DHMT or a competent NGO, where appropriate.

6. Integrating the Private Sector

The district health system comprises all actors and all initiatives aiming to preserve good health and to treat diseases irrespective of the provider's institutional character or the scope of the services offered. Due to the move towards decentralisation, the private

sector plays an increasingly important role in the provision of services.

The private sector includes all non-state providers of health-related services: hospitals, health centres, private medical practitioners, private clinics and pharmacies, laboratories and blood banks, etc. Also included are companies that are contracted to perform certain functions such as laundry or cleaning (outsourcing). Traditional healers and birth attendants are obviously also non-state providers, but they need to be categorised differently (see below for further details). The number of all these providers in the overall health system has continuously risen in recent years, especially in urban areas.

Private providers comprise:

- church organisations
- not-for-profit organisations (e.g. cooperation partners)
- profit-oriented institutions and individuals
- medical services of companies.

The integration of all health services into the district health system (irrespective of the agency in charge) is logical and makes sense if all potential services are to be fully exploited. However, there is still resistance (albeit decreasing) on the part of the government and on the part of private-sector providers. Generally, historically old conflicts between the state and the church are at the root of this resistance. These conflicts intensified during the struggle for independence and have only started to abate in recent years as a result of the reform movement. Nonetheless, in most cases current conflicts are equally shaped by mutual accusations¹¹.

The first step on the way to integrating private health services into the DHS is to include them in the information system, and to ensure their appropriate participation in planning and management of the district resources as well as in quality control. This in turn presupposes that the non-state services accept the need for openness as regards their income and expenditure, which, on the part of the churches, is met with limited enthusiasm.

¹¹ It was and is a question of power. The government dislikes the relative independence of churches with their external support, while the churches refuse to let themselves be “annexed” by the state. The authorities accuse the churches of failing to disclose and share their resources, while the churches accuse the authorities of mismanagement and unreliability. As a result both claim for themselves the right to refuse to share.



Learning from history

In Tanzania, an illustrative poster exhibition on the history of health care in the country was organised. It provides background information on the development of the Tanzanian health care system, which helps better understanding of the currently implemented health sector reforms. The exhibition also points out the main health problems and highlights the efforts the system has undertaken so far to tackle them.

The development of modern and traditional medicine, the German and British colonial period and the modern health care system is shown, as well as the contributions of missions and churches in setting up the health system.

With independence in 1962, Tanzania started building a health system according to standards of the industrialised world. However, the country was affected by a long-lasting period of continuous political and economic decline resulting in the dilapidation of the health care system.

Finally, in the 1990s fundamental structural and administrative reforms of the health sector started. Looking back in history to study how reforms were planned and implemented in the past might offer useful lessons for today.

(Photo: Tanzania, 1929, in D.Clyde: History of medical services in Tanganyika)

It is generally accepted that the guidelines and provisions of state policy are binding for all health facilities across the board. However, non-state services must be granted a measure of independence to enable them to decide on their specific orientation and specialisation. For it is the very variety of funding bodies and providers which allows the health service to respond to the many different cultures found within the target population, and their divergent needs.

It is important to acknowledge that private health facilities have no external source of funding and must therefore ensure that their income covers costs if they are to survive. Revenue is generally raised by charging user fees, although this means that less affluent patients are automatically excluded from these facilities. Limited access is not acceptable from the point of view of overall planning, and a solution to this equity problem must be found within the district. The DHMT needs to contribute to the development of practicable solutions such as exceptions, subsidies or alternative modes of payment.

The integration of private pharmacies in the health system means that they have to accept the principle of supplying essential drugs in the form of generic drugs. This, understandably, causes resistance, not only because it affects the individual commercial interests of pharmacists, but also those of the entire pharmacy sector in the country and the international pharmaceutical industry that stands behind it. Compromises are needed to ensure the continued availability of essential drugs in their generic form on the one hand, while allowing the sale of branded drugs on the other. This is another task for the district health management team (and of course for higher levels).

The role of traditional healers and traditional birth attendants is very different from that of private providers, since they are an organic part of the community and of their own specific ethnic culture. It is thus difficult and of questionable value to integrate them into the "modern" health care system and its administration.

In the interests of patient care, however, efforts should be made to contact these groups and even to work with them on certain health problems (e.g. hygiene or HIV/AIDS). Only mutual recognition of the strengths and weaknesses of both health care systems can form the basis for fruitful cooperation.

7. Inter-sectoral Cooperation

In every country, society is broken down into sectors for administrative and political reasons, but no thought is generally given to the fact that people do not think in terms of sectors. Although it is found time and time again that inter-sectoral cooperation is vital for development, its implementation never meets people's expectations. This open reluctance or inability to practice inter-sectoral cooperation can be seen at all levels, from the community to the ministries. The reform movement of recent years has made new attempts to bring different sectors together, but when discussions

District response to HIV-AIDS

The fight against HIV/AIDS is considered to be more effective based on an inter-sectoral approach at district level rather than a national vertical programme. Furthermore, including all districts of a region in one regional programme will increase efficiency and the impact of the programme.

Health services are of crucial importance for health communication, diagnosis and therapy. However, successful prevention of the disease is achieved only if couples practice safe sexual behaviour. For this purpose, all sectors of society, and "education" in particular, have to be involved.

The coordination of various stakeholders requires inter-sectoral committees at regional and district level. Relevant institutions and initiatives of the civil society should be included accordingly. Politicians need to be aware of the magnitude and dynamics of the disease as well as the priority measures to be organised in their zone of influence.

The main programme activities should include

- STD control
- Health promotion, advocacy and resource mobilisation
- Voluntary counselling and testing (VCT)
- Counselling and home-based care (PLPHA, orphans)
- Prevention of mother-to-child transmission (PMTCT)
- HIV/STD laboratory support
- Safety in health services
- HIV and STD surveillance
- Treatment with anti-retroviral drugs (ART)

address the issue of funding, almost insurmountable difficulties emerge yet again.

Inter-sectoral cooperation for the health sector covers in particular the fields of social affairs, education, water supply, sanitation and agriculture. Spontaneous forms of cooperation of varying degrees can be observed fairly often, but they do not generally stand the test of time.

The efforts in many countries to improve cooperation among all partners in development using Sector Wide Approaches (SWAp)¹² raises the question as to whether the focus on one sector – in this case the health sector – is in itself an obstacle to inter-sectoral approaches.

Institutionalised forms such as inter-sectoral committees at district level are important platforms for exchanging information and implementing joint projects. It is possible that the inter-sectoral HIV/AIDS committees set up in many countries might provide the impetus needed to tackle this epidemic.

Competent and reliable leadership by the district health management team is crucial in this respect. Specific cooperation between two sectors (e.g. health and education) is very useful and is being implemented successfully in some places.

Further Reading

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¹² It should be stressed that SWAp is a strategic approach rather than a programme or a new method to pool donor funds. SWAp aims specifically to strengthen the cooperation between development partners in support of government-led policies and increasingly relies on government for management, implementation and funding procedures. It calls for a new relationship in which the government has to develop strong ownership of the health reforms and the development agencies have to move away from previously fragmented implementation and management systems (see bibliography).

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2. Planning and Management

by Rainer Kuelker and Helmut Goergen

1. Introduction
2. District Health Planning
3. Administration/Management
4. Quality Management
5. Supervision
6. Information System and Monitoring



Quality management may include awards for the best services in the district (Tanzania)

1. Introduction

Good planning in a district health system requires a precise framework that is based on answers to the following questions:

- What is the planning period? Is the objective a multi-year development plan or a short-term plan of operations (or both)?
- Is planning limited to one sector, or is it part of a medium-term comprehensive district development plan?
- What human and financial resources can be presumed available?
- Are all bodies active in the sector (state, NGOs, churches, private providers) involved in the planning process? If not, are their specific interests taken into account?

We shall concentrate here on the annual update of the district health plan, which is also the basis for medium-term planning. Planning at lower levels and other planning methods, such as round tables, will not be discussed here (for further details see further reading at the end of this chapter).

2. District Health Planning

The most frequently encountered planning task is the production of a one-year plan prepared by the district health management team; hence the level of detail provided here. The outcome of planning should be a document that is accepted as binding for all parties. For this reason it must be produced with extreme care and with the involvement of all major actors in the health sector.

Chapters of a District Health Plan

1. Introduction
2. Situation Analysis
3. Resources Analysis
4. Priority Health Problems
5. Planned Interventions
6. Plan of Operations
7. Monitoring
8. Assumptions and Risks

The Ministry of Health or the regional health authorities can foster this process by issuing clear guidelines and possibly by providing experienced facilitators to support the planning teams.

Planning must take adequate account of the status quo in the district and its realistic development prospects. Based on our extensive experience with planning methods and documents we have developed a standard plan in line with the competences and needs of those responsible at district level.

Introduction

The planning document should not only be targeted at health professionals. It should also be easy to follow by individuals who are not used to planning in the health sector, e.g. members of an inter-sectoral district development committee. The introduction should always outline the need for and importance of a plan of this kind. It should spell out the extent to which planning and planning goals correspond with national objectives, and present the planning methods used. The introduction should describe the geographic, socioeconomic and administrative characteristics of the district, provide the most important population-related data (number of inhabitants, mortality rate, urban-rural population distribution), and attempt to give an overview of existing health problems.

Situation Analysis

The situation analysis deals in more detail with the epidemiological status of the district. Where available it should quote morbidity and mortality statistics and outline specific epidemiological characteristics (epidemics, rare diseases, malnutrition).

This chapter should also be used to provide a comprehensive description of the existing health system, beginning with a description of existing health facilities – including the number and type of facilities, the authority running them and the number of inhabitants in their respective catchment area. Furthermore, it should assess the state of maintenance and repair of buildings and equipment. The table below has proven easy to read, thus facilitating the interpretation of the gathered data.

In rural areas it might be a good idea to add as another column to figure two “no. of inhabitants living within a 5 km radius”, since experience indicates that distances of more than 5 km tend to pre-

Table 1: The status quo of health services in the district

Name of the facility	Type	Operator	Inhabitants in catchment area	State of repair of buildings	Of acceptable standard (yes/no)

vent people from attending health care facilities regularly or easily when needed.

Another good idea is to list some of the most important health-related indicators, since this provides an excellent overview of the main health problems in the district (Table 2).

These data may also be presented in a table with the respective figures from previous years. This makes it easier to spot trends and

Table 2: Examples of important indicators when performing situation analysis within a district. See Section 6 for more details on the indicators.

Indicators	2003	2004	2005
■ Individuals using general consulting hours			
■ Antenatal consultations			
■ Tetanus vaccinations during pregnancy			
■ Vaccination cover (DTP3)			
■ No. of family planning consultations (CYP)			
■ New TB cases diagnosed			
■ No. of cases HIV/AIDS			
■ No. of cases of malaria			
■ Deliveries with medical assistance			
■ Rate of caesarean sections			
■ Rate of stillbirths			
■ Rate of malnutrition among children			
■ Rate of underweight children			

identify areas where the focus of action should lie and special needs ought to be addressed as a matter of priority.

The problem analysis should conclude with a brief description of all other activities in the sector, with special emphasis on those organised and run by the communities themselves. This should include a description of the activities of community health workers, traditional birth attendants, volunteers in the family planning sector and community committees.

Finally, the work of district-level training facilities for medical staff should be mentioned.

Analysis of Resources

Every district health management team must have a solid understanding of the human resources at its disposal. Governments usually set staffing levels for the various health facilities. These figures should be consulted and compared with actual staffing levels. This comparison will reveal any potential for staff transfers. In addition, it will help to identify the training profiles that are most desperately needed. This comparison almost always highlights the fact that existing staff shortages should be seen in a more differentiated way. Often it is only specifically trained staff members who are in short supply, while the district is overstaffed in terms of unskilled labour. The following table provides a good overview.

Table 3: Availability of human resources in a district health system

Personnel category	Planned number of staff	Staff actually available	Over/understaffing
General practitioners			
Surgeons			
Nursing staff			
Midwives			

In addition to staff working in state-run health facilities, the health personnel of all private facilities in the district should be included in the analysis.

For well-founded planning it is also vital to compile a list of existing physical and financial resources. The following information should be gathered:

- total budget and sources of funding in the previous year;
- funds pledged for the planning period and sources of financing;
- budgets for vertical programmes, and contributions from partner organisations;
- inventories of general technical and medical equipment of health facilities;
- report on the state of repair of health facility buildings and maintenance measures;
- further training courses to be held during the planning period.

Priority Health Problems

The scarcity of resources available means that health districts are required to focus their energies on priority health problems. The planning team has to assess the relative importance of the various health problems. For this purpose, various methods can be used but two considerations should be taken into account:

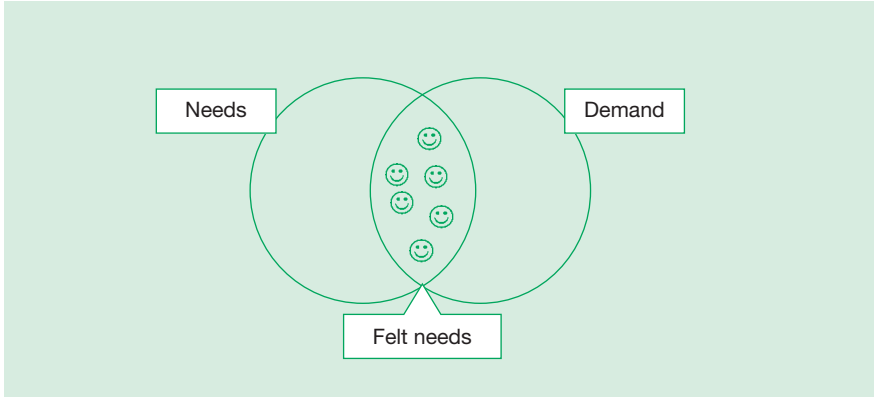
- The population and the health service staff sometimes disagree in their assessment of health problems. The views of both groups need to be reconciled when priorities are set.
- Health-relevant activities will be more effective if the *needs* identified by the health service staff correspond to the *demand* expressed by the local population¹³.

Table 4: Different views of priority health problems

As perceived by	Importance	Feasibility of case management
Health service staff	Degree of medical severity Incidence	Available therapies Qualified staff Costs
Local population	Perception of the disease and its impact on the community/family Culturespecific appraisal of the disease	Acceptance of the solutions and methods offered

¹³ The methods introduced by the World Bank, according to which DALYs (disability-adjusted life years) and QALYs (quality-adjusted life years) are used to identify priority health problems, have not yet been adopted in practical work at district level.

Figure 1: Felt Needs



Where needs match demand we speak of “felt needs”. The relation between demand and need is dynamic and determined by the dialogue between health service staff and the local population. Health promotion can influence the dynamics as can political decisions. For example, counselling on family planning options can raise demand for these services, while the clearly articulated desire of the local people to have access to better water supply might encourage the local leaders to invest more in this field.

Planning teams with limited experience would benefit from using the following simple criteria when assessing the relative importance of health problems:

- the incidence of a disease
- the degree of severity of a disease
- cost-benefit analysis in relation to treatment options
- the views of the local population.

General statistics give information on the *incidence of diseases*. The *degree of severity* can be assessed using the following questions:

- Is the disease fatal or does it entail any serious impairment of health if not treated?
- Does treatment have an objectively verifiable positive influence on the course of the disease?

When assessing *treatment options* for a disease, the following aspects should be considered:

- Do the existing health facilities have the technical and human resources to treat the disease?
- Is the majority of the population able to afford the treatment?
- If the treatment is fairly expensive, do the health facilities have the resources to provide treatment (e.g. TB, leprosy)?
- If the treatment is very expensive, long-lasting and not always successful, patients should be referred to another appropriate facility (e.g. in case of cancer).

The *views of the population* can be ascertained by answering the following questions:

- In which cases of sickness and to what extent does the local population initially consult traditional healers?
- In which cases of sickness and to what extent does the local population consider ‘modern medicine’ to be more effective than traditional methods of treatment?
- What are the main factors determining the level of confidence of the local population in the ‘modern’ health services?

Table 5: Example of a grid used to assess the relative importance of diseases occurring frequently in the district for a district health plan (in Lushoto, Tanzania)

Diagnosis according to frequency	Severity	Feasibility of case management (costs, equipment, personnel)	Population's point of view	Ranking
1 Malaria (+++)	+++	+++	+++	12 points = 1
2 ARI (+++)	++	+++	++	10 points = 3
3 Intestinal worms (+++)	+	+++	+	8 points = 8
4 Pneumonia (+++)	+++	++	+++	11 points = 2
5 Ear infection (++)	++	+++	++	9 points = 5
6 Diarrhoea (++)	++	+++	+++	10 points = 3
7 Anaemia (++)	++	+	+	6 points = 10
8 Eye infection (++)	++	++	+	7 points = 9
9 PID (+)	+++	+++	++	9 points = 5
10 Genital discharge (+)	+++	+++	++	9 points = 5

In addition, the assessment of health problems includes the identification of weaknesses and bottlenecks in the structure and organisation of the district health system. The management team in charge has to plan the activities accordingly. The most important areas are:

- infrastructure (buildings)
- medical and technical equipment in the facilities
- training needs of personnel
- transport
- water supply and sanitation in the district
- provisions for disasters (epidemics, floods, etc.).

Planning the Interventions

Once the problems have been prioritised on the basis of the information mentioned above, the expected results and the concrete actions to achieve these can be determined. It is crucial that they are in line with national health policy and formulated as concretely as possible (Table 6).

Table 6: Example of a clearly formulated expected result and necessary activities to achieve this

Expected Result	Activities
The mortality rate from malaria in health facilities of district x is lower than in the previous year	<ul style="list-style-type: none"> ■ Train health service staff in modern malaria treatment. ■ Conduct campaigns to treat febrile diseases in households. ■ Organise a campaign to advocate the use of impregnated mosquito nets.

The next step is to cost the planned activities. A distinction has to be made between the running costs needed for operations at district level and the costs of specific activities intended to develop the district and improve the quality of work at this level (development budget). The calculation has to distinguish between unit costs and annual costs with the source of funding being clearly identified.

The running costs generally include the following items (running budget):

- salaries
- per diems
- fuel for vehicles and generators
- office materials
- maintenance of buildings and technical equipment
- drugs and medical supplies.

The costs of specific activities (development budget) include:

- all training and upgrading measures
- renovation, extension and construction of hospitals and health facilities
- procurement of new technical appliances, vehicles, etc.

Plan of Operations

The (usually) one-year *plan of operations* aims to schedule activities reasonably in line with the available resources and to prevent the district health management team from overstretching itself by

Table 7: Budgeting of a district health plan

A. Running costs	Unit costs	Cost per annum	Financed by
Personnel costs			
Per diems			
Fuel			
Office materials			
Maintenance (vehicles/technical appliances)			
Maintenance (buildings)			
Drugs/expendables			
B. Development costs for specific activities			
Further training in TB control			
Renovation of a health centre			
Anti-malaria campaign			
Other			

drawing up overly ambitious plans. A proper visualisation of the mentioned aspects is crucial.

Table 8: Model of a plan of operations (without detailed activities)

Expected Result / Activity	Time Schedule												Responsible	Source of finance	
	J	F	M	A	M	J	J	A	S	O	N	D			
Supervision															
Further training in TB control															
Renovation of a health centre															
Anti-malaria campaign															
Other															
Other															

Monitoring

Methods for monitoring work need to be determined at the planning stages. Monitoring is crucial to follow up how the activities are implemented, and whether or to what extent the planned results have been achieved. One or more indicators should be specified for every result. When selecting indicators, the accepted characteristics and quality criteria for indicators should be taken into account. Indicators must define *what* is to be measured, *when*, *where* and *how*. It should also be possible to measure the indicator without incurring major costs, and the method selected must result in different users coming to the same conclusion.

So-called milestones should be defined¹⁴ to measure or present progress made towards achieving the planned results.

By contrast, it is not appropriate to attach an indicator to every activity, because indicators for activities do not tend to provide much information; they merely show whether or not a planned activity has been carried out.

¹⁴ The use of benchmarks makes for confusion rather than facilitating the process. Benchmarks have been popularised worldwide through the concept of quality management. The term is used to mean a point of reference or standards of reference (e.g. in comparable institutions or systems) against which individuals can measure their own performance and to which they can gear their efforts.



All members of the DHMT need to be involved in planning and management (Tanzania)

Assumptions and Risks

This chapter gives the planning team the opportunity to place the entire planning process within the overall context of the district health system. The plan can only be implemented without delay if all partners involved (local community or municipal authorities, Ministry of Health, donors, NGOs) honour their commitments. The overall context can be described in more detail in the form of assumptions and risks. Detailed responses to the following questions will enable the planning team to make a realistic assessment as to whether the plan is likely to succeed:

- Are the pledges of financing reliable?
- Will the planned transfers of personnel really take place?
- Is the expected technical support available?
- Are there any events (epidemics, unexpected increase in the incidence of individual diseases) that may hamper the implementation of the plan?

3. Administration/Management

Effective Administration

The district health management team is responsible for the administration of the health district. Most countries regulate membership of the team, but the composition does not always reflect the priorities of the district. Efforts should be made to ensure that the team members have the appropriate profile to cover the needs of the district health sector (Table 9).

Table 9: Recommended membership of a district health management team

Team Members	Duties
District medical officer	Coordination of all activities, overall responsibility
Senior physician of the hospital	Responsible for all hospital activities, should also be involved in supervisory duties
Reproductive health coordinator	STD control, AIDS control, family planning, obstetrics
Preventive medicine coordinator	Vaccination activities, hygiene measures, contact with local people, activities at community level
Pharmacist	Supply of drugs and medical expendables at all levels
Logistics officer/maintenance expert	Responsible for equipment, maintenance of technical and medical apparatus, and of buildings

The administration can only be efficient if every staff member has a precise job description and is properly prepared for his or her tasks. Job descriptions should be based on long-term planning documents for the district (district development plan, etc.).

Each district needs clear and transparent administrative regulations that are accepted by the personnel. Guidelines and explanations to facilitate implementation should include:

- Regulations on the involvement of community representatives in decisions on financial and administrative issues;
- Regulations on drugs supply (ordering system, storage, destruction of expired drugs);
- Instructions for case referrals;
- Rules governing the purpose and form of home visits by health service staff.

The old problem of the key...

is more than just an anecdote!

An emergency case is admitted at night, and must be operated on immediately, but the operating theatre is locked. Only the theatre nurse has a key, but he's off duty, and not at home, so people have to comb the vicinity to find him.

Many similar scenarios will spring to mind. Old hands go as far as to claim that development could be jump-started if only the right keys were always in the right place at the right time.

Every health facility should have a number of administrative instruments including:

- A cash account record book (which is kept safe with only authorised staff having access), a ledger to record income and expenditure;
- A file for vouchers and invoices (with rules as to who is authorised to sign what);
- A file for supervisory reports;
- The minutes of health committee meetings;
- A register of major services rendered (antenatal care, development checks for children, birth record, register for consulting hours, laboratory record book);
- Forms for referrals, special examinations, etc.

All these administrative tools should be simple to understand and easy to use, effective and easy to check with written instructions for each of them to make it easier for staff members to use them.

Customer Orientation

The effectiveness of an organisation can be measured by the benefits received by the customers (patients). The system must be organised in a way that patients can be cared for around the clock where necessary. This means facilities being staffed at all times, including during the day when some staff members perform duties outside the health facility (e.g. home visits or vaccination campaigns).

Curative and preventive services should be *integrated* (e.g. treating a sick mother and vaccinating her child at the same time). The organisation should always be geared to identifying high-risk cases in the waiting room, and giving them priority treatment.

To minimise *waiting times*, patients should be consulted to identify procedures that are likely to be most effective.

Job descriptions, regulations and work plans should be drawn up for all staff members, and not only for members of the district health management team.

Referral System

It is extremely difficult to introduce a well-functioning referral system. The technical aspects of a referral to hospital can only be resolved satisfactorily with the local community. Transport and financing issues in particular must be regulated.

Ideally, all health facilities should have a telephone or radio link to the district hospital, where they can request an ambulance. However, this is expensive, and difficult to run without interruption.

Where there are no telephone or radio links, and no ambulance is available, other solutions must be found (vehicles from the community, traders or taxis). It has to be clear how the costs of referral and further treatment are to be financed. The district health management team should gauge the quality of the referral system in terms of responses to the following questions.

- Do patients and the health service staff know how to organise an urgent referral?
- Is there any risk of a delay of the patient's referral, e.g. because the patient or his/her family cannot afford the transport?
- Is there a guarantee that competent staff will treat the patient immediately, once he or she has been referred to the hospital?

See Chapter 3 - 'Health Services at Primary Level' for more details on the referral system.

Personnel Management

Personnel management is the most important and perhaps most difficult task. The DHMT has to define how many qualified and assistant staff are required and ensure that recruitment matches these identified needs. Unfortunately, official staffing plans often fail to reflect the real needs¹⁵ or the capacity of a district to provide staff. Therefore, it is important to identify personnel needs with care.

Another difficulty with regard to staffing encountered in many countries is the rural-urban gap. It is not uncommon for urban facilities to be overstaffed, while staff are in desperately short supply in rural facilities. The DHMT has to show courage and considerable creativity to achieve a balanced level of staffing across all health facilities. The problem is that all too often the team is unwilling to transfer staff to remote areas, or to make unpopular decisions, such as making staff redundant or taking disciplinary action. Team members fear, or have already experienced, pressure from those affected, or from their influential backers. However, decentralisation of the health sector is expected to result in the DHMT being given more authority in personnel issues. More effective management of health personnel in the districts requires:

- Positions to be filled on the basis of personal applications
- Locality bonuses to attract staff to unpopular locations
- Personnel development plans drawn up in consultation with staff members
- Involvement of the local community in recruitment campaigns.

See Chapter 5 - 'Human Resources Development' for more information on this topic.

¹⁵ Usually, job plans in hospitals are linked to the number of beds, therefore there is often (hidden) resistance to reducing the number of beds in line with actual needs.

Financial Management

Effective financial management is another major element of a well-functioning health district. The DHMT has the responsibility to:

- determine the various sources of financing several months before the start of the financial year. Well-founded planning is only possible if all budgetary contributions are known.
- regulate the financial administration in a way that guarantees that all levels of the system are coordinated. Efforts must be made to ensure maximum transparency, the detailed documentation of the flow of funds and clarity in the allocation of responsibilities. Internal (and if necessary external) controls of cash accounts and cashiers should be carried out regularly.
- assist the community in running checks in those cases where revenue from the population is part of the system.
- seek alternative financing options in cooperation with the district administration if the district health system is underfunded, and to put these into practice (introduction of user fees, pre-financing systems, sponsors, etc.).

For more details, see Chapter 6 – ‘Costs and Financing’.

Materials and Equipment

To assess the minimum needs in terms of material and equipment, an inventory should be drawn up of all existing buildings, utilities (electricity, water, etc.) as well as furnishings and medical equipment. Where available, official guidelines (standards) should be consulted.

Additional infrastructure and material requirements should be identified in line with the terms of reference of the individual institutions. This requires a review of the financial resources of the district, the logistical conditions (e.g. supplies of inputs) and maintenance options. Necessary procurements have to be discussed with the DHMT, the district administration and the community on the basis of existing standard equipment plans. Since these tend to be overly ambitious they should be revised for each district.

4. Quality Management

Health services constantly aim for high quality performance. Efforts to ensure quality used to be subsumed under the terms *quality control* or *quality assurance*. In low-income countries, the challenge has been to create the foundation for acceptable quality based on the construction and maintenance of a basic medical infrastructure and the training and recruitment of an adequate number of qualified staff. In addition, further quality-enhancing measures are now obligatory at all levels, including:

- the establishment and utilisation of information systems
- regular supervision of health facilities
- further training measures for staff
- community involvement.

Yet, in spite of all these efforts, the results have not been convincing, triggering a quality debate in low-income countries. To a large extent, this debate has been influenced by concepts developed in Europe and the USA. The new term *quality management* was introduced to emphasise that in future the responsibility for quality assurance will be put firmly in the hands of staff themselves. Self-evaluation techniques for health personnel, peer group approaches and quality circles at implementation level are considered to be effective methods that should be used to a greater extent.

The EFQM Model for Quality Management

Quality management according to the EFQM model focuses primarily on:

- results orientation
- customer orientation
- leadership and consistency of objectives
- facts
- staff development and participation
- continuing learning, innovation and improvement
- establishment of partnerships
- accountability to the general public

Another focus should be increased customer orientation. User surveys (along with other methods) are valuable tools to provide those responsible with information about their customers' views.

Certification and accreditation

These are processes used by an authorised body, government or NGO to evaluate either an individual or an organisation in order to ascertain whether it meets predetermined requirements and criteria.

Accreditation usually applies only to organisations, while certification may also apply to individuals.

Furthermore, there is growing consensus that quality can only be sustainable if policy-makers show real commitment and are willing to tackle the problems of health care by rewarding positive developments (with awards or public praise) while imposing sanctions where progress is unsatisfactory (critical reports in the press, public censure).

Concepts of quality management developed in Europe, e.g. the EFQM model (European Foundation for Quality Management), are only applicable to a certain degree in low-income countries. First experience shows, however, that they can provide a valuable impetus. The core statement of the EFQM concept, that "customer satisfaction, job satisfaction and social accountability can be achieved by leaders who use policies and strategies, appropriate staff orientation and the management of resources and processes to achieve excellent business results" in principle applies to any district health system in Africa.

Quality assurance with certification or assessment of hospitals in line with predefined standards is already routine practice in industrialised countries. Low-income countries, however, have little experience with these procedures.

Quality management in a district health system has to take into account the fact that the system does not consist of one single isolated hospital, but of various health services at two, integrated, levels. This network is comparable to an operational unit within a larger business.

Quality management in the district is no longer the sole responsibility of the management team, but also of the staff working in the

Main features of quality circles

- Quality circles work voluntarily on topics they have selected of their own accord.
- Quality circles should have a fixed group of members (8 – 15 people).
- Quality circles tackle topical problems in the immediate working environment and generate potential solutions.
- An accepted facilitator should always guide the quality circle.
- Quality circles meet regularly (e.g. four times a year).

health facilities. They must become familiar with new methods (e.g. quality circles) so as to ensure the quality of their own work. Members of specific professional groups from various health facilities (e.g. midwives) or of one department within a hospital (e.g. laboratory staff, or emergency department staff) can get together and organise a quality circle.

The management team has to play an important supporting role, and has to learn to respond constructively to the solutions and ideas generated in the health facilities.

Greater public involvement is also likely to enhance the quality of services. Firstly, health service staff can gain respect in the community by providing good-quality services, and secondly public pressure should encourage staff to act more responsibly and take the initiative.

Some successful public relations methods include:

- the publication of lists ranking health facilities according to quality criteria;
- targeted and frequent information of mass media on successes and problems in the health care sector;
- organisation of “District Health Days” with public information, entertainment and awards for the best service providers;
- attracting sponsors from the public and private sectors;
- involvement of Members of Parliament and other dignitaries from the district.

Methods that aim to identify and publicise the best health facilities are increasingly gaining ground in Africa. A meaningful comparison of services obviously requires a balanced range of measuring instruments including indicators, surveys and data gathering methods that take into account the effect of unequal starting con-

ditions (e.g. remote locations, staffing problems). The intended outcome is a competitive spirit that will inspire both front-line health service staff and the community or church representatives acting as funding bodies to boost quality even further.

Surveys of this kind and the resulting ranking lists provide the district health management team with information about the facilities that are performing well, but equally about those in need of more support. This is one way of encouraging healthy competition among health facilities. The best centres can be rewarded, moti-

Table 10: The Tanzanian model of a QM concept at district and regional level (2001)

Quality Management (QM) in the District Health System (Example of Tanzania)			
To identify the status quo, a baseline study was conducted to assess all health services in six districts of Tanga Region. In accordance with the EFQM model, a list of eight indicator groups was used:			
1. Leadership	2. Personnel Management	5. Staff Satisfaction	6. Health Service Output
3. Resources Management	4. Health Care Performance	7. Client Satisfaction	8. Health Service Outcome
The list of indicators was subsequently developed further, and used as a checklist for regular supervisory visits. The district health management team weighted the indicators in terms of their relative public health importance, and expressed this in points.			
Area	Points	%	
1. Leadership	50	10%	
2. Personal Management	50	10%	
3. Resources Management	**		
4. Health Care Performance	200	40%	
5. Staff Satisfaction	**		
6. Client Satisfaction	75	15%	
7. Health Service Output	125	25%	
8. Health Service Outcome	**		
Max. Points	500	100%	
Three criteria (**) were not included in the assessment for methodological reasons. A ranking list of all health facilities was then drawn up for each district on the basis of the number of points accorded.			
The best services were publicly commended and received a financial prize donated by sponsors.			

vating both staff and funding bodies to continue to upgrade the quality of their work

5. Supervision

There is general agreement that regular supervision of health services at primary level (e.g. once a month or at least quarterly) is necessary to ensure acceptable medical and administrative standards. However, the impact of supervisory visits that are perceived only as purely administrative control combined with some medical consultations is doubtful. New approaches are needed with supervising staff committed to their implementation.

Supervision should primarily aim to provide advisory support to the health professionals as well as regular further training. Administrative control is of secondary importance.

The supervisor should operate as a consultant and partner rather than a teacher and controller. Exchange of experience should replace top-down lectures. The medical, technical and communicative skills of the staff should be enhanced. Every effort should be made to establish a bond of trust between the supervisor and the staff for whom s/he is responsible.

Good supervision presupposes thorough preparation. The supervisor has to be aware of the previous supervisory report and consider in advance the most appropriate focus of the next visit.

In general, a supervisory visit should be announced in advance. In situations where staff lack reliability and commitment, a surprise visit might be appropriate, although these are not a suitable method to inspire trust and confidence.

Sufficient time needs to be allocated to every supervisory visit which could be carried out according to the following pattern:

1. Welcome and introduction to the personnel of the facility (and even the community). At this point staff are given an opportunity to raise important questions or problems.
2. Participatory observations. The supervisor observes certain activities in the facility (e.g. consultations, vaccinations or antenatal check-ups).
3. Control of documentation systems, including finances.
4. Writing of a supervisory report, possibly with the help of checklists. However, it is important to avoid the report turning

into a mere form-filling exercise, since experience shows that checklists are frequently filled in incorrectly, or not at all.

5. Feedback. This last step is the most important, because it gives the supervisor the opportunity to talk in detail about various technical, medical or organisational problems and to discuss with the staff realistic suggestions for improvement. The activities agreed upon should be recorded in the supervisory report, along with the name(s) of the person(s) responsible.

If the number of supervisors in a district is very limited it is preferable for one supervisor to be assigned to the same facility over an extended period of time. The instruments introduced, such as diagnosis and therapy schemes, cashbooks, files for vouchers, etc. have to be actually available at health service level

Frequently, supervisory visits are conducted by a team, with the individual team members looking at specific aspects of the work of the facility. This approach might be appropriate for larger facilities, particularly those with high staffing levels. However, it is less well suited to smaller facilities with few employees. These may perceive the visit by an entire team as an invasion, resulting in the quality of routine work being compromised in the interest of satisfying the expectations of the supervisory team.

Apart from the district medical officer, all medical doctors (especially general practitioners) working in the district and experienced senior nursing staff can act as supervisors. In this way the workload can be spread, and hospital doctors can gain an insight into the living and working conditions in their catchment area.

If a large district has many health facilities and more than one hospital, it can organise two or more supervisory teams. This is often the case when a church-run hospital supervises "its" smaller health facilities. It is always a good idea for teams to coordinate activities. The church team should also supervise state dispensaries if they are close to the church-run hospital and vice versa.

All supervisors should meet regularly under the chairmanship of the district medical officer, to share and evaluate the experience gained during supervisory visits.

The costs of supervision have to be covered by the district budget. If no state funds are available, the costs should in principle be borne by the health centres as operating costs. However, in reality, this remains wishful thinking. It is quite obvious that for the

time being, no health facility in a sub-Saharan country would be willing or able to bear the costs of being supervised.

Experience shows, however, that the scenario set out above is more often the ideal than the reality. Frequently, supervision is seen as nothing more than a source of revenue, and the traditional role of the supervisor as a controller seems to have changed very little. In view of this fact, and given the many years of effort that have gone into trying to modify supervision, it would seem appropriate to seek out complementary or alternative forms of monitoring. The new methods emerging within the framework of quality management present interesting options in this context.

6. Information System and Monitoring

Reporting must provide up-to-date information about the epidemiological situation in the district, as well as operational data from the services and programmes reflecting their functioning (e.g. user rates). Given the complex and expanding flood of data, PC-assisted health information management systems may be the best way forward¹⁶.

Up-to-date information is essential for efficient planning. Some data can be gathered continuously (from reports and registers) for monitoring purposes, while other data have to be gathered by means of special surveys at wider intervals (e.g. every 2 – 3 years).

The figures (or estimates where no other figures are available) relating to specific target groups are essential as reference data (denominators). The degree to which a goal has been achieved can be measured by establishing the percentage of people in a target group who are actual users of a service in relation to the number of people who should be using the service (for instance the number of users of FP methods identified by the health services versus the total number of those who should use FP methods). By contrast, absolute figures (e.g. number of consultations) reflect only the workload of the facilities. The data to be collected in a minimum health information system are listed and explained at the end of this chapter.

¹⁶ The experience of the GTZ and the DED with a PC-based HMIS system in Tanga Region, Tanzania has been documented by Frank Boehning, DED 2002. (See also www.ded-tanzania.de)

A Computerised HMIS...

is being used in six districts in Tanga Region, Tanzania (2003). The main achievements of the new technology include:

- computerised data-entry and report writing and printing in special format at district level
- forwarding of data from the districts to the regional medical office (RMO) on floppy disk rather than form sheets
- computerised feedback reports from the RMO to the District Medical Officer (DMO) and from the DMO to health facilities
- increase in reporting rates from regional to national level from 26% (1997) to 99% (2001)
- data entry and printouts for supervision checklists based on MS-Access used at district level
- computerised planning software based on MS-Excel for district health plans
- all DMOs can be reached by e-mail via dial-ups.

A comparison of data reported within a district provides information about the facilities that are performing well, but also those that have problems and require support. Publishing these results may encourage a healthy level of competition between the health facilities. The best centres should be commended, motivating both the staff and the funding body to continue enhancing the quality of their work. On the other hand, the DHMT and the local authorities will have to identify solutions for the worse-performing services. Within a region or even country-wide, the performance of entire districts could also be compared and ranked accordingly.

Rationalisation of the reporting system at regional and national level aims to maximise efficiency and generally requires:

- the introduction of simple, easily comprehensible forms
- the limited gathering of figures on morbidity and mortality (e.g. in line with WHO classification)
- the inclusion of operational and managerial data (e.g. utilisation rates)
- regular feedback from the Department of Statistics (Ministry of Health) to the districts
- regular feedback from the district health management team to the individual health facilities.

Table 11: Minimal Monitoring System for the District Health System

Part I: Denominators	
Indicator	Explanation
1. Total target population	The size of the population to be served, either in the district as a whole or by specific individual health services is an important denominator. The demarcation of a health district is often a controversial political decision, because alongside the medical criteria, specific interests of individuals and groups often play a part. The catchment area of a health centre in terms of its population and specific target groups is established on the basis of an agreement between areas; if they overlap, the demarcation lines must be altered accordingly.
■ Number of pregnancies	
■ Women of child-bearing age (15–49 years)	
■ Infants (under 12 months)	
■ Young children (under 5 years)	
Part II: Operational Data (Public Health System)	
2. Geographical accessibility	The percentage of the target population (of the district or of any one health facility) living within a radius of 5 km (or 10 km) (can also be defined in terms of the time required to reach the facility, for instance no further than one hour's walk away).
3. Qualified staff	Based on the official staffing plan, e.g. in terms of absolute numbers of vacancies.
4. Availability of essential drugs	Based on the official list of essential drugs, measured e.g. in the form of random checks (supervisory visits) or in number of weeks per year for which the essential drugs included on the list are genuinely available in the facilities in question.
5. Degree to which operating costs are covered	Analysis of sources of finance (state, local community, users, external) for the district health service as a whole or for individual health facilities, expressed as a percentage (pie chart). Size of anticipated funding shortfall for planned budget. Degree of coverage of operating costs by revenue raised from user fees: degree of self-funding and dependence on external sources of financing.
6. Regularity of supervision	Number of supervisory visits per health centre per annum, or the ratio of actual visits to planned visits.
7. Rate of utilisation of curative services	Number of new cases (= initial treatment) per annum as a percentage of the population size. There is no target numerator here, since the average number of diseases affecting a member of the community cannot be standardised. On the basis of general experience, the WHO takes 1.0 as a rough guideline for sub-Saharan Africa.

8. Hospitalisation	Alongside the number of beds per district, the number of patients hospitalised per month, or: bed occupancy rate, or: duration of hospitalisation (or a combination thereof).
9. Rate of utilisation of ante-natal check-ups	Number of expectant mothers consulting medical services at least two or three times in the course of their pregnancy, as a percentage of the total number of expected pregnancies in the target group.
10. No. of caesarean sections	Measured as a percentage of the expected annual number of deliveries in the district. International experience of the rate of complications indicates that caesarean sections are required in 2–3% of all cases. Where necessary caesarean sections are not carried out, the consequences are often fatal for the mother, so this indicator gives us information as to whether the rate of maternal mortality has been influenced.
11. Percentage of children born with medical assistance	Percentage of deliveries at health facilities and/or outside health facilities but with the help of trained traditional birth attendants.
12. Complications during childbirth, as a %	In addition to maternal mortality, the percentage incidence of puerperalism or secondary healing (after caesarean sections or episiotomies). For child complications, take the perinatal mortality figures.
13. Utilisation of modern methods of family planning	Rate of utilisation of contraceptives by women aged 15–49, measured in terms of couple years protection (CYP), since this is more precise than the contraceptive prevalence rate.
14. Coverage of child care	Recommendation: Because of the limited resources, regular consultations should be planned until the age of 36 months (until children are weaned completely). Five consultations for the first year (vaccination appointments), four consultations a year for the following two years, and thereafter as required.
15. Vaccination coverage	Recommendation: Percentage of children with full vaccination cover (at least DTP3 plus measles) at age 12 months.



Part III: Morbidity and Mortality Data

- | | |
|---|--|
| 16. The most common infectious diseases: | Together these generally account for more than 80% of all diseases. In many cases statistics are being kept already. |
| <hr/> | |
| 17. Other major diseases/
public health problems
e.g. | Only diseases of major general (public health) significance should be listed, e.g. endemic diseases, new epidemics or extremely dangerous, neglected diseases. |
- malaria
 - AIDS
 - diarrhoeal diseases
 - respiratory diseases
 - schistosomiasis
 - cholera
 - onchocercosis
-
- malnutrition
 - iodine deficiency (struma)
 - eye infections
 - road traffic accidents.

A reporting system in the health sector can be considered effective if it provides clear information on the following issues:

- epidemiology of major health problems
- availability and accessibility of services
- relevance of activities (with regard to the major social and health problems)
- quality of care
- acceptance by the population of the services provided.

It is important to emphasise that the quality of an information system depends first and foremost on the care with which the raw data are gathered and documented. The validity of data depends to a large extent on the knowledge and skills of the health service staff who are in charge of collecting the data.

The design of the information system should ensure that the staff of each facility can at least record the raw data without requiring

any special training. Data aggregation has to take place at district level, where DHMT members might require special training, particularly if computer programmes are already in use.

Sometimes more in-depth data may have to be gathered. Studies of this kind, which also offer an opportunity to check the validity of routine data, should be carried out by specialists recruited specifically for this task.

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3. Health Services at Primary Level

by Andreas Stadler and Helmut Goergen

1. Context and Preconditions
2. The Role of the Health Centre
3. Communication with the Target Population
4. Organisation and Management
5. Quality Management
6. Referral System



Standard dispensary in rural Burkina Faso

1. Context and Preconditions

The number of primary health care facilities within the district health system is determined on the basis of the presumed workload generated by providing services to the population living within an acceptable catchment area. In reality, though, alongside these rational criteria other factors contribute to the decision of setting up a health centre¹⁷. For example, local political ambitions have an impact, and churches sometimes manage “their” services without taking into account the proximity of equivalent services.

In theory, the first port of call for a patient is the health facility at primary level – the health centre or dispensary. Given the complex needs of patients, they may then be referred to the appropriate level of care, and on completion of treatment referred back to the health centre.

In practice, however, the health centres are not very effective, and the move away from a regulated system to a “free market” system engenders competition among providers. As a result it is the client, or patient, who chooses between different geographical locations, as well as levels and types of facilities (state, private, religious, traditional or informal). This is most evident in urban areas where patients decide, on the basis of economic criteria and a fairly critical appreciation of the quality of services offered.

In view of the growing number of private providers which, particularly in urban areas, have frequently been set up without the necessary qualified staff, supervision and control are essential. The district health system needs to set clear standards and regulations to ensure the quality of services in terms of:

- a minimum service package
- staff recruitment
- equipment and infrastructure
- organisation of services and pertinent procedures.

Primary health care services aim to provide an optimum response to the needs and demands of potential users. To this purpose, they have to incorporate procedures for an ongoing dialogue, mechanisms to determine needs and methods permitting contin-

¹⁷ In this context, the term “health centre” covers not only health centres per se, but also all other facilities at primary level, such as dispensaries.



Growth monitoring – one of the priorities in communicating with the community (DR of Congo)

uous monitoring in order to provide basic information to planners at district level. This is crucial to allow the health system to meet actual needs.

2. The Role of the Health Centre

The allocation of resources as well as decisions on the kind of services to be provided by health centres are part of overall district planning. The health centre (HC) is an integral part of the “health map” and/or the “coverage plan” of the health district.

Standard attributes of a health centre

Operational health activities

- Curative care and monitoring the chronically sick
- Emergency care (first aid), referral to hospital
- Primary obstetrics (antenatal check-ups, tetanus vaccinations, deliveries)
- Child care: vaccinations and growth checks
- Prevention/treatment of malnutrition
- Family planning
- Integrated IEC work
- Communication with the community in terms of primary preventive work, especially water supply and sanitation
- Support for and cooperation with AT, CBD and other health initiatives, especially those targeting young people

Management activities

- Epidemiological monitoring and reports
- Pharmaceutical management (in line with the system introduced)
- Management of materials, finances, personnel, equipment

Accordingly, it has to take account of the following:

- existing regulations and procedures (minimum package of essential services, national standards)
- planning priorities
- the nature of the catchment area (population profile and distribution, epidemiological profile, economic activities, transport situation and infrastructure problems, such as roads, rivers or other features limiting accessibility of the HC; accessibility of safe drinking water, etc.
- activities of other actors
- user needs and demands.

In principle, any planning at primary level has to involve community representatives and other actors including those from the private sector. This will generally make for more cohesive planning and monitoring, especially if mutual interests are respected. Often it is useful to formalise reorganisation plans in the form of a written agreement signed by all actors involved and approved by the funding bodies.

3. Communication with the Target Population

As an integral part of the local community, the health centre has a crucial part to play in communicating with the local population, informing them about health risks and problems, the methods of prevention and treatment available, as well as getting the community to play a part in managing health activities. The health centre is the ideal communication interface for health education, counselling programmes on hygiene and nutrition, and for obtaining realistic information about the catchment area.

Ideally, this communication should be established as soon as health service staff begin to familiarise themselves with “their” target group and the living and working conditions in their area. To this end, health service staff should undertake home visits and hold talks with the local population¹⁸.

¹⁸ This sort of local census is practised in many countries (e.g. Togo, Congo, the former Zaire and Cameroon) but to date only within the framework of projects.

Appropriate structures are needed to underpin sustainable communication with the community¹⁹. The classic approach with committees has many drawbacks. This dialogue structure has almost always been organised by the funding bodies, i.e. the health administration, and rarely by user groups. Practice shows that these structures quickly prove to be of limited value – especially in urban areas. They have tended to become mere instruments or even accomplices of the system, rather than representing the views of users. Thus, one major challenge is to identify an appropriate institutional form of communication in terms of mandate, representativity and being firmly anchored within the civil society.

Community organisation – the examples of Togo and Benin

With a view to reinforcing community participation and better involvement of local communities in the management of health facilities and their health in general, regional self-help schemes have been organised in Togo by the Regional Support and Advisory Group (CRAC) in Central Region, and in Benin by the Management Committees Support Unit (UACOGE) in Borgou District. These pilot schemes have demonstrated that it is possible to involve local communities more effectively in the management of health facilities.

They have, however, been hampered by regulations governing community participation. Most of the existing health committees were lacking the legal status that would allow them to act as true partners of the state and benefit from this status. As a way out of this impasse it was decided to transform the health and management committees into associations under private law, and accord them the relevant legal status.

Togo has adopted a strategy of creating district-level associations with management units located in the health facilities, thus facilitating community feedback. These associations subsequently joined a federation at the level of the health regions and at national level.

The evolution of these structures in several countries in the form of associations or NGOs²⁰ (with a status anchored in civil law) or as bodies integrated into the administrative and political organisa-

¹⁹ As mentioned, above this development depends to a great extent on the general development status of a country in terms of decentralisation and the emergence of civil society.

²⁰ Such as the Users Association in Madagascar, and the Health Associations in Togo and Benin.

tion at local or community level has gone a long way to overcoming these deficits.

As legislation in most countries provides for dialogue and co-management through committees, efforts should at least be made to avoid the problems mentioned above and to ensure that newly created or reorganised committees are structured in line with the principles of self-diagnosis and independent local development.

At the same time, communities need not be passive objects of communication; it is up to them to demonstrate credible, dynamic commitment.

This step presupposes technical training and all-round back up. It is important for the district health management team to supervise these communication structures, in particular through regular contact with community representatives. (See also Chapter 8 - 'Community Involvement in Health Care'.)

4. Organisation and Management

Due to decentralisation, communities have a greater responsibility than ever before to ensure that "their" health centres operate smoothly. This entails responsibility in terms of personnel recruitment, financing and health services management. The role of the Ministry of Health is limited to developing the necessary strategies and concepts and to monitoring their implementation, while local authorities (Ministry of Local Government or similar body) are in charge of financing and operating the services.

Thus health service staff must be prepared to cooperate consistently with those responsible at local level in planning and managerial decisions.

Continuity of Services

Every sick person or individual seeking consultation should be able to obtain care or counselling at all times (day or night). It is nevertheless important to protect staff from abuse of this system and from excessive workload, for example by limiting after-hours services to the seriously ill or those who have come a long way. Regulations must be introduced to ensure that an appropriate number of staff are on call (e.g. by contracting local personnel only

for night shifts and holidays). Equally it is important to ensure that the health centre remains open and staffed even if some staff members are working outside the centre (conducting home visits or vaccination campaigns, for instance). The same applies to pharmacies, i.e. it must be possible to obtain drugs around the clock.

Integrated Services

Ideally, curative, preventive and promotional services should be presented as an integrated package, i.e. different kinds of services should be available within the framework of one consultation (for instance treating a sick mother and vaccinating her child). The reality is, however, that attempts to concentrate activities, staff shortages, and logistic reasons (particularly vaccinations²¹ and antenatal consultations), have resulted in preventive and promotional activities frequently being scheduled for set days. As a minimum requirement it should be possible to identify high-risk patients at these sessions and refer them to the service for subsequent treatment.

Waiting Time

In efforts to minimise waiting time, it is a good idea to analyse the various stop-off points and organise them more efficiently. In most cases, administrative procedures can be shortened considerably.

Personnel

The number of qualified staff is generally inadequate. It is not enough merely to lament this fact and accuse the government of failing to meet its responsibilities. Local communities too must demonstrate their responsibility by recruiting additional qualified health staff (not lay helpers) and by paying salaries out of their own budgets.

The available staff should be able to provide a wide range of services. Various activities (e.g. home visits, health consultations) should be performed by as many health workers as possible. Job

²¹ Vaccines usually come in multidose bottles. Once the bottle is open it can only be kept for a very limited time after which it has to be discarded if it is not used. Where only one or two people are to be vaccinated, wastage is high.

descriptions need to be precise and each staff member should be given their own job description in writing.

It is important to foster a positive team spirit and do everything to avoid competition between team members. Each health team should come together regularly for working meetings. A representative of the local community or “committee” should receive an official invitation to attend regularly. (See also Chapter 5 - ‘Human Resources Development’).

**Management tools at health centre level
(example of Central Region, Togo)**

1. Health information management

- Register
- Epidemic notification and surveillance sheets
- Statistics sheets
- Various activities sheets (MCH, EPI, etc.)
- Graphs and curves indicating pathology of diseases
- Summary of monitoring results
- Map of the catchment area
- Supervision and reference book

2. Drugs management

- Stock sheets
- Daily sales records
- Summary sheet
- Purchase order

3. Financial management

- Cash book
- Monthly financial record sheets or ledger
- Bank book
- Receipts book
- Budget

4. Human resources management

- Planned absences table (leave, training, etc.)
- Rotation and “on-call” list
- Job descriptions and organisation chart

Administration

As a general rule, regulations already exist within the framework of the district governing the management of supplies, equipment and finance, as well as the flow of funds. (See Chapter 2 - 'Planning and Management').

Administrative tools in use (for running the services, financial management, managing drugs, supplies, equipment and information) should be as simple as possible to ensure that they are understood and actually used by local staff. Tools that have proved to be practicable at local level should always be given precedence over the more complex instruments occasionally proposed by national and international experts.

Given the fact that involving user representatives in management is a source of constant conflict, there are few success stories²². Nevertheless, encouraging observations have been made in several countries²³.

Since in many sub-Saharan African countries revenues from the sale of drugs and pharmaceutical products account for the lion's share of the total revenue of a health centre (conception of the Bamako Initiative, initiated in 1987²⁴), this issue is crucial for the organisation of a health centre. The regulations governing the logistics of drugs supply can be considered in terms of two models:

- A community-based organisation separate from the health centre (even if the point of sale is integrated into the health centre). This option has many advantages in terms of costs, sustainability and transparency/good management of the system (e.g. in Cameroon).
- The management and sale of drugs as an integral activity of the health centre. Unfortunately, this system favours the prescription of essential drugs as branded products rather than generic ones since the prescribing personnel receive a commission for drugs prescribed. Individual treatment patterns also influence prescribing practices.

Whatever the model adopted, it is vital that the beneficiaries of health services are involved in planning and management. It also

²² Frequently, executive staff reject any transparency in co-management practices for personal reasons.

²³ See Togo and Benin.

²⁴ In the late eighties and nineties the Bamako Initiative was launched by UNICEF in Francophone sub-Saharan African countries.

seems advisable to develop a bonus system for good prescribing practices. The DHMT should consider this aspect in the context of quality management.

Fees, work plans (personnel and assignment of duties: shift patterns, place) and other information (fixed days for outdoor activities such as home visits, range of services on offer) should be worked out in close collaboration with all stakeholders and should be advertised to the general public.

To establish the minimum needs of the health facility, an inventory should be drawn up of the buildings, utilities (electricity, water, etc.), medical equipment and other apparatus with reference to official standards. Additional needs (if any) should then be identified in terms of equipment, infrastructure, materials and repair work.

For a discussion of the maintenance of buildings and equipment see Chapter 9 - 'Technical Services and Maintenance'.

5. Quality Management

In view of the importance of the health centre within the system, its relative isolation due to the geographical distance from the district hospital as well as its small size and radius of action, quality



Quality of services as perceived by a mother and her child:

- Service provision nearby
- Affordable fees
- Acceptable waiting time
- Staff gentle and informative
- Drugs available
- Successful treatment
- Appropriate documentation

(Photo: Regina Goergen, Guinee)

management is a major challenge²⁵. Apart from the organisation of services and relations with users, it is first and foremost the quality of services that determines the effectiveness of the health centre and the extent to which it is accepted by the local population. Many approaches can be taken to improve the quality of services offered.

- Ensure compliance with *diagnostic and treatment standards* (by means of flow charts, see also Chapter 7 - 'Drug Supply'). Prescriptions with counterfoil (as used in Benin and Togo) are an excellent and simple way of monitoring the quality of prescriptions. The counterfoils can also be used for stock management.
- *In-service and/or periodical training of health centre staff*, which has to be organised by the DHMT. For example, in addition to training already included in the regular meetings at district level, supervision visits, practical training and exchange of staff between the district hospital and the health centre (as practised in Benin) should be considered. These days the internet offers innovative distance learning methods for training purposes.
- In line with the new concept of quality management, the staff should analyse their own performance and identify possible ways of improvement. One method is quality circles (see also Chapter 2 - 'Planning and Management')
- Performance monitoring based on appropriate indicators such as:
 - all activities requiring the patient to visit the health centre regularly (chronic diseases, e.g. TB, contraception, antenatal consultations, etc.);
 - activities requiring wide coverage to be effective and pertinent such as vaccination campaigns. "Advanced strategies" are a valid approach here ²⁶.

²⁵ The term quality management – rather than quality control or quality assurance – is used here deliberately. The quality management approach is more complex and embraces certain new methods. For further details see Chapter 2 "Planning and Management".

²⁶ 'Advanced strategies' provide for activities across the catchment area of an individual health centre in order to ensure extensive coverage of the target population.



Deliveries assisted by qualified health professionals are indispensable to reduce maternal mortality (Tanzania)

6. Referral System

The technical aspects of a request to refer a patient for special treatment to a hospital have to be resolved jointly with the local community. The resolution of transport and funding problems should be regarded as a priority task.

If no ambulance is available, other options need to be assessed (vehicles belonging to the community or traders, or taxis).

Financial regulations must be clear in advance. The following options are conceivable:

- incorporation of the costs of transfer in the consultation fees;
- cost-sharing between community, health centre and patient;
- creation of cash reserves to pay for ambulance transport, regularly topped up from fees and used when needed to cover some or all of the costs;
- creation of a mutually supportive group/health insurance scheme.

Patients transferred to the hospital should be treated at preferential rates in view of the fact that their first point of contact was the health centre, where they will have incurred costs for a first assessment of their condition and/or the initial stages of their treatment. However, this presupposes that a financial concept exists providing for treatment free of charge or at a reduced rate for referral patients.

The patient should be transferred back to the health centre as rapidly as possible, to keep costs down both for the patient and for the system as a whole.

In view of the fact that documented information on the patient by the referring health centre to the hospital and vice versa is often less than satisfactory, standardised forms and an efficient two-way information system are vital if the referral system is to work smoothly.

Modern means of communication such as radios, telephones or mobile phones can be used everywhere. The DHMT has to assume responsibility for coordinating the testing of appropriate communication systems.

The referral system is not limited to the transfer of patients. It also includes the information system, the financing system and cooperation mechanisms within the district health management team. (See also Chapter 1 - 'The Concept of the District Health System').

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4. The District Hospital

by Michael Marx and Gertrud Schmidt-Ehry

1. **Concept**
2. **Technical Level**
3. **Personnel**
4. **Management**
5. **Financing**
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A male ward – well equipped with bed nets (Tanzania)

1. Concept

The Role of the District Hospital in the Health Care System

Traditionally, hospitals have been relatively independent of the rest of the health system. However, sometimes they were subject to financial restrictions or required to accept religious rules, as in the case of missionary hospitals. They aimed to obtain the best possible technical equipment, to employ as many physicians and specialists as possible and to maximise their bed capacity.

In most countries this situation changed after independence, as national health systems were developed, particularly with the advent of the primary health care strategy in the sixties and seventies. Early PHC concepts - in the immediate aftermath of the Alma-Ata Conference in 1978 - failed to accord the hospital the role it deserved. The focus was very much on community participation and increased accessibility of front-line health services. To some



The quality of the district hospital's surgical department is crucial for the entire district (Tanzania)

extent this can be understood as a clear counter-reaction to the former hospital-centred concepts.

As a result of this change in thinking the health system soon found itself at the other extreme: the focus shifted completely to the primary level of the health care pyramid to the exclusion of the referral system, concentrating on preventive actions while ignoring the importance of much of curative medicine. In general, the population and the political authorities tend to perceive hospitals as showpieces of the health system as a whole, and as centrepieces of the health services in the district. It was not until the early nineties that health policy-makers restored hospitals to their rightful place within the health system pyramid. Attention was directed and funds were allocated again to the referral hospitals at national and regional level, with their specialised departments and highly qualified staff. All smaller hospitals at lower levels are included in this system in their capacity as first-level referral hospitals.

The national health policy of most countries provides for each district to have one district hospital. Some districts also have additional small hospitals, usually mission hospitals. Today, the district hospital is seen as an integral part of a comprehensive system - the health district. Its role is determined by the way responsibilities are allocated within the district. At primary level it is complemented by health centres and dispensaries, where ideally more than 80% of all cases can be treated²⁷. The hospital's role is to offer the health care that cannot be provided by health centres. Only a very small number of patients (fewer than 10% of all cases) need to be transferred to referral hospitals at regional and national level (i.e. outside the district) for medical reasons.

At present, most district hospitals still operate more or less like large health centres. Some do not even perform surgery, which can result in life-threatening delays in emergencies, leading to maternal death in particular.

The distribution of health care tasks as laid out above presupposes the effective coordination of, and close cooperation between, all health services within the district, particularly with regard to the information system, staff qualifications as well as posting, supervision, and financing schemes.

²⁷ This is an estimate based on various observations in sub-Saharan countries.

The integrated district hospital must recognise the district health management team as the dominant coordinating body for the district. The hospital director retains responsibility for hospital operations and the budget, and should be a member of the district management team. In some countries, the hospital director also acts as the district medical officer²⁸.

The community (representing users) and local leaders (in line with the policy of decentralisation) should be involved in the planning and management of the district hospital. Hospital committees or hospital boards are often a good way to bring together representatives of local government, the local community and technical staff.

Hospitals in Tunduru District (Tanzania)

The district's population of about 250,000 is served by a government district hospital (with 140 beds) and the Mbesa mission hospital (with 140 beds) run by the Christian Mission in Many Lands (CMML). In contrast to the government hospital, the missionary hospital is well-equipped and staffed. The strong support it receives from overseas allows it to perform very well. In spite of the high level of fees, utilisation rates are high for all services.

The two hospitals have now agreed to work together and share the curative and preventive tasks in the interests of the entire population. The new agreement provides for:

- membership of the missionary hospital in the district health management team;
- joint annual district planning;
- joint needs assessment;
- sharing of supervisory tasks: the mission's team is to supervise 8 of the 31 health facilities in the district, using the same checklists as the district health management team.

Medical professionals are, however, often reluctant to accept community involvement at hospital level. The arguments advanced are neither transparent nor convincing. "Lack of technical compe-

²⁸ There is general consensus in all countries that these two functions should not be performed by one person.

tence” on the part of those from outside the medical sector is often mentioned as the main reason, but fear of being controlled may come closer to the truth. The mandate, competencies and tasks of coordination boards need to be defined in detail in order to avoid friction and counterproductive debates.

In addition to the district hospital, many districts have other, usually smaller and non-governmental hospitals, in most cases church-run institutions. Cooperation among the hospitals is rare though, creating overlaps and even competition. However, the various owners are increasingly looking for ways of sharing responsibilities and of establishing effective cooperation²⁹.

The hospital plays an important role in the referral and back-referral system including the organisation of emergency transport. For more details on the referral system see Chapter 3 - ‘Health Services at Primary Level’.

Definition of Tasks

Within a district health system, the hospital’s terms of reference have to match those of the health centres and dispensaries: their structures and services should be complementary. Ideally, first-line health services (FLHS) should only refer patients to hospitals if their condition requires additional technical expertise (for diagnosis and treatment) or qualified staff (e.g. for operations). This would be the most cost-effective model. However, in reality a certain overlap of services is unavoidable. This occurs in many urban areas where people prefer to go directly to the hospital rather than first consulting urban dispensaries (where they exist). In rural areas the quality of health centres and dispensaries is often so poor that patients bypass these services. Overlap may also be the result of financial factors as well as poor service coverage in general within a given geographic area.

Thus, the profile of a hospital and the services it offers to the target population have to be defined and subsequently adapted to the specific situation and the needs of the population. Finally, it is important for the hospital’s outpatient clinics not to miss opportunities to reach patients for preventive and curative care.

²⁹ E.g. in Tanzania, where the Government and a number of churches launched a joint programme “Sharing responsibilities – Joint activities of Church and Government health and education services” in 1996.

Table 1: Overview of the essential services that a district hospital should offer³⁰

Essential services provided by a district hospital

- Emergency and general surgery
 - Including laparotomy, interventions in obstetrics and urology, traumatology
- Conservative treatment of serious illnesses
 - Including severe malaria, TB, AIDS, circulatory failures, diabetes, etc.
- Advanced eye care, including surgery
- Dentistry
- Mental health
 - Optional, becoming more important
- Advanced diagnostics
 - X-rays, ultrasound, laboratory including HIV counselling and testing
- Outpatient care
 - Charging higher fees for non-referred patients
- Technical service and maintenance of the hospital
 - Including a workshop and technicians catering for all health centres in the district
- Disaster preparedness unit
 - Including drugs and equipment to cope with outbreaks of epidemics
- Other tasks in training, planning and management:
 - In-service training for personnel from all district facilities
 - Participation in pre-service training for nurses and midwives
 - Studies, action and operational research on both clinical and public health topics
 - Cooperation with the DHMT in the supervision of health centres.

2. Technical Level

Physical Infrastructure

To work cost-effectively, the typical district hospital should have a minimum of 100 and a maximum of 200 beds (the bed to popu-

³⁰ This list is not exhaustive, and must be adapted to the specific needs of each district and to existing national standards.

lation ratio in sub-Saharan Africa is about 1:1,000 inhabitants, and ranges from 0.5 to 2 beds per 1,000 inhabitants).^{31 32}

This size allows for optimum efficiency of investments, provided the bed occupancy rate remains at between 50–80% during non-emergency periods. This, however, can only be expected when services of acceptable quality are offered.

The appropriate size of a district hospital should be defined on the basis of national conditions and standards.

Table 2: Examples of district hospitals in sub-Saharan countries

	Savalou, Benin	Savane, Burkina Faso	Loubomo, Congo	Kissidougou, Guinea
Inhabitants	129,000	137,000	203,000	174,000
Beds	86	53	144	100
Beds: inhabitants	1,500	2,585	1,410	1,740
Total staff	47	23	137	80
Physicians	2–3	1	6	9

Buildings

As populations expand and more space is required, many hospitals require ongoing renovation and extension work. In order to ensure reasonable work schemes that take into account patient flows and the principles of effective management, all planning should be based on a master plan which incorporates expected future developments.

An updated map should be produced showing all hospital premises with all buildings and the surrounding areas. Surgery and maternity wards need to be grouped around the theatre, and all buildings should be connected by covered paths. Interior design ought to take into account patients' comfort and their right to privacy, and all rooms need to be easy to clean. The map of the hospital should be signposted for all patients and visitors at the entrance of the hospital.

³¹ There are marked variations in these figures across the world, from 11 beds per 1000 inhabitants in Central and Eastern Europe to less than 1 bed per 1000 inhabitants in India (World Bank, 1993) and Cambodia (national health statistics 1998).

³² Van Lerberghe, Tropical Institute of Antwerp, 1996

The standard district hospital should include wards for female, male and child patients, one maternity ward and one ward for infectious diseases (sometimes for AIDS patients). Depending on the kind of expertise available locally, a hospital may also have wards for ear-nose-throat (ENT) or other disciplines.

Functional buildings include the operating theatres (for septic, non-septic and minor surgery), delivery rooms, outpatient department, diagnostic services (X-ray, laboratory) and physiotherapy and administration. Appropriate space should be made available for HIV/AIDS-related counselling in a confidential atmosphere.

There is an increasing demand for *maternal waiting homes*. Some examples (e.g. in Tanzania) demonstrate the usefulness of these establishments, where women can be cared for outside their homes prior to the expected delivery. There are various reasons for this, but one is to reduce risk factors. These establishments should be organised by the women and their families. The health services should cover the costs, so that attendance is free.

Support Services

An appropriate *water supply and sewage system* is of the utmost importance, which implies regular and reliable maintenance. The state of toilets and washing facilities for patients needs to be exemplary to support proper health education on hygiene. The availability of safe water and a proper sewage system should be used as one indicator for the monitoring of service quality.

A functioning *waste disposal system* is indispensable for hygienic reasons including incinerators for any kind of clinical waste. Incinerators must be located a reasonable distance away from patient accommodation. If the proper functioning of incinerators cannot be guaranteed, some authors recommend the use of deep garbage/sewage pits. It is essential for infectious waste to be separated from the rest and, given the continuing spread of HIV/AIDS, particular attention should be paid to the correct disposal of syringes and needles.

Kitchen and laundry: There is a trend towards privatising food services, and towards providing facilities for hosting the relatives of patients. This option should be examined in line with local customs and opportunities. In many countries simple kitchen facilities

or fireplaces are provided to allow relatives to prepare patients' food.

Ambulances should be parked on hospital premises. Drivers must be available twenty-four hours a day, and ambulances need to be in good working order at all times³³. An evacuation system, which can include a radio system connecting the health centres to the hospital, must be organised so that patients can be transported as needed.

Some of the supporting services such as transport, cleaning, maintenance and linen services may be outsourced on a contractual basis to private suppliers, as is already the case in some countries. This may even be an option for special diagnostic analyses such as X-rays or specific laboratory analyses. In any case, when examining the feasibility of outsourcing, account should be taken not only of costs but also of the quality of the services provided.

Little experience has been gained to date with computer-assisted management of district hospitals, and with internet-based communications between district-level and central institutions (training centres, public health institutions, etc.³⁴), but increasing efforts are being made in this area.

Technical Maintenance

Little if any attention tends to be paid to the maintenance of buildings, grounds and medical equipment. A high-ranking Tanzanian politician claims that, "in the African culture maintenance does not exist". Only recently have health sector reforms started to include maintenance concepts in order to avoid wasting meagre resources.

Hospital maintenance is an integral part of a decentralised district health system. Maintenance systems are not the sole responsibility of technicians and engineers, but are a management tool that is interlinked with all other aspects of the management cycle. They include preventive maintenance schemes, starting with very simple measures, which can often be performed by the health personnel. However, qualified technicians are needed to undertake most repair work on medical equipment. For this it may be necessary to recruit

³³ Ambulances need to be subject to strict controls to prevent their use for private purposes. (See also Chapter 3 "Health Services at Primary Level", Referral System.)

³⁴ e.g. in Cameroon and in Tanzania



The hospital's laboratory needs qualified staff

technicians from the private sector, especially where experience with high-tech equipment is needed.

District hospitals should have a workshop equipped with at least a minimum tool kit and should be staffed by a qualified technician or at least a staff member with basic training in maintenance and workshop management. This unit can provide necessary maintenance and repair services to all health facilities in the district. For more details see Chapter 9 - 'Technical Services and Maintenance'.

Equipment

The technical equipment should adhere to national standards which exist in most countries and are respected in public services. However, there is no consensus about the necessary technical level of district hospitals. For example, it is nowadays generally accepted that an ultrasound apparatus is standard diagnostic equipment, whereas the need for a gastro-fiberscope and some laboratory equipment is questioned (the availability of anti-retroviral drugs in AIDS treatment is another challenge for all district hospitals).

Most countries suffer less from a lack of health care equipment than from equipment which is not usable or not used. This equipment can sometimes be found in its original packaging or still in a warehouse. About half of the inventory is generally not in working order at any given time, and the figure can be as high as 75%. Although the situation varies from one country to another, there are some common factors: equipment is not in use because it is not appropriate for the local needs and context, or equipment is not usable because it is faulty and there are no repair services. This is partly due to a lack of awareness of the personnel. In other instances spare parts might not be available or affordable. Today, there are some 6,000 different types of generic medical devices and an estimated 750,000 or more brands, models and sizes ranging from simple disposable devices to very complex systems.

Even where the equipment is sufficient, a certain number of items will be stolen, and not recovered. This equipment often turns up in private practices.

In summary, there is a need for comprehensive physical asset management, including effective controls.

3. Personnel

Staffing

In many countries, health sector reforms include new staffing standards for all levels of the health system. Obviously, staff standards have to be based on solid factors, e.g. service data, expected national achievements and acceptable workload. Some countries, like Malawi, have undertaken functional job analyses leading to new posts and staff redistribution within the district health system. However, because of the political implications, such assessments are not easy to carry out.

Hospital staff – Example of the District Hospital in Handeni, Tanzania, 2003)

The total staff include 107 workers rather than 144 (according to official staffing levels established by the MoH and Civil Service Department in 1999) of which the following are clinical staff:

	available	requested
Medical Officers	1	2
Assistant MO (4y)	2	9
Nursing Officers (4y)	4	9
Nurse-midwives (3–4y)	19	33
Nurse attendants (0–1y)	28	25
Clinical officers (2–3y)	10	13
Lab technicians	1	2
Radiographer	1	1
Health Officers	3	4
Total	69	98

Vacancies = 30%

Unfortunately, national standards do not always correspond to the needs of a rationalised health system in terms of staff numbers and qualifications. In various countries, hospitals remain over-staffed with under-qualified health workers (e.g. in Tanzania) due to the ‘inflated’ structure of the civil service and to political and bureaucratic resistance to bringing staffing levels down to a rea-

sonable level³⁵. In other countries, for various reasons, there are considerable shortfalls of qualified staff, e.g. Rwanda.

Some fundamental expectations are likely to be valid for any district hospital:

- Sufficient MDs to ensure 24-hour availability.
- Sufficient nurse-midwives to ensure 24-hour availability.
- At least one qualified administrator (for financial control).
- The ratio hospital bed to clinical nurses should be 1:3 provided that the occupancy rate is higher than 60%.

Qualifications

In most sub-Saharan countries, the competence of clinical staff is limited and not in line with the tasks assigned. Training at university hospitals is usually of poor quality, and training methods and materials are mostly old-fashioned. It is not unusual for clinicians in rural hospitals to work for many years without any further training. Quite a number of hospitals “compensate for” the lack of qualified medical personnel by employing more under or unqualified staff, thus creating significant problems with the quality of care.

External training options should be identified and used wherever possible. Management personnel in particular should receive special training in various areas (e.g. organisation and management of

A modular training scheme at the District Hospital in Kissidougou (Guinea)

A modular training scheme on clinical skills was set up in cooperation with the MoH and specialised national and international clinicians. This on-the-job training was organised by the hospital staff and carried out with the assistance of invited external paediatricians, surgeons and gynaecologists. It was offered biannually as a series of 4–6 weekly sessions. Staff from peripheral health facilities in rural areas were invited to attend the weekly training sessions at the hospital.

³⁵ Many observations of actual overstaffing at hospitals, ‘ghost workers’ (non-existent persons registered on payrolls) and a stunning level of absenteeism point to the need for considerable structural adjustments. In 1998 Tanzania, for instance, started to reduce the total registered number of civil servants from 360,000 to 290,000 and plans to cut numbers further to 210,000.

health services, health management information systems, financing systems, quality management).

In-service clinical training can be carried out by hospital personnel. This should take place as regularly as possible and should be supplemented by theoretical training. Combined practical and theoretical training should also be offered to health centre staff. Clinicians from the next referral level (regional and national hospitals) should be involved in teaching.

At the Kissidougou District Hospital (Guinea)...

clinicians were involved in the supervision of health centres. It may be considered as an outcome of this activity that in only one year the rate of Caesareans performed in the district rose from 0.5 to 1.3% of all deliveries in the district³⁶, a rate, which could be used as a proxy indicator for a drop in maternal mortality.

The district hospital is the most important training institution in the district, not only for its own staff but also for personnel from the other health facilities in the district. Hospital physicians and senior nursing staff can provide specialised backstopping services in health centres and other first-level institutions (supervision). This is a good opportunity to become acquainted with the social and epidemiological conditions on the ground, and to improve relations with the personnel.

4. Management

Service Organisation

Each hospital should have a clear understanding of its role in the health system, the targets and accordingly, the necessary size, technical level of equipment and composition of its staff. An organisational presentation (organigram) should be available depicting the structure and functional interrelations of all departments.

³⁶ On the basis of the mothers' backgrounds and in line with the clear, critical indications governing the use of sections, about 2% of all deliveries in an average sub-Saharan health district should be by Caesarean section.

To run a hospital efficiently one needs modern management tools and methods. A management team is in charge of organising and running the hospital. Usually, this includes the medical director, the administrative director (or administrator/accountant), the senior nurse and possibly heads of other departments. With the decentralisation of the health sector in many countries, so-called hospital boards including representatives of the community and the local government were established, assuming responsibility for organisational as well as technical and personnel decisions.

At the urban Secondary Hospital of Bè in Lomé (Togo)...

a co-management committee was created, bringing together representatives of different population groups. It was involved in all major decisions, especially all financial issues. All members were given training and then coached further by CREDESA (Regional Health Development Centre) in Benin.

Administration

In view of both the growing administrative burden on district hospitals (e.g. through the decentralised financing system) and present shortcomings, much emphasis has to be placed on a competent and efficient administration. However, medical personnel should be relieved of administrative duties as far as possible while continuing to participate in decision-taking where appropriate.

The qualifications of administrative staff should include computer-based bookkeeping, storekeeping, accountancy, etc. It is essential for working methods to take account of the information system used in the district.

Personnel Management

In many cases, poor personnel management at hospitals remains a major problem. However, persisting hierarchical structures and lack of commitment can be addressed through successful modern methods such as the involvement of concerned staff in planning, quality circles, as well as transparent and reliable personnel management decisions (including penalties and incentives).

Job descriptions and duty instructions have to be made available to every member of the health team. *Duty rosters* should be established in collaboration with the individuals involved and displayed in a public place.

Daily clinical staff meetings and regular work meetings (e.g. weekly) on organisational issues improve work organisation and communication and strengthen team spirit.

The change of shifts requires a proper handover, especially on the maternity ward. All major events occurring during night duty are to be properly recorded in the *duty book*. This should also include other general issues, such as equipment/material failure.

Incentives and awards for good performance as well as disciplinary action to be taken where appropriate should be part of personnel management.

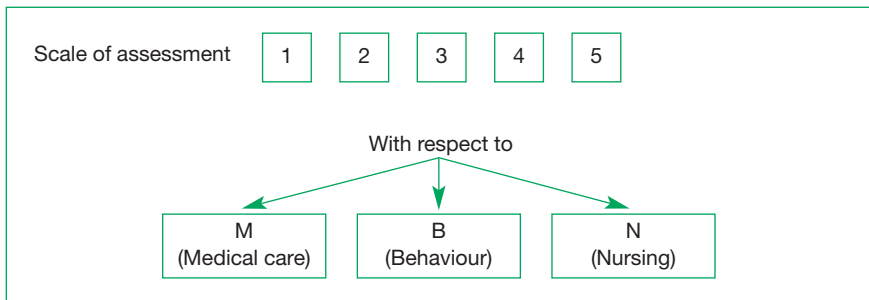
For further details see Chapter 5 - 'Human Resources Development' and 2 - 'Planning and Management'.

Quality Management

In view of the high costs, the severity of most diseases and the high risks involved in hospital care, quality aspects are particularly important for hospitals. International experience indicates that new methods of quality management focusing on self-evaluation and self-monitoring ('quality circles') are particularly applicable to hospitals.

The teams themselves are encouraged to work out plans for quality improvement, based on a proper analysis of their perfor-

Figure 1: Tool box for patient feedback. The assessment by the patients is expressed in figures (from 1=best to 5=worst), while the letters M, B and N refer to the aspect of care assessed.





The rate of Caesarean sections is a relevant indicator for the hospital's performance and the referral system (Rwanda)

mance. Special occurrences such as the death of a patient in the maternity ward should be documented and subject to critical analysis.

Apparently, it is more useful to launch such initiatives in individual departments rather than the entire hospital, for example in laboratories, maternity wards, operating theatres, or maintenance services.

Apart from self-evaluation it is crucial to obtain regular patient feedback on the quality of the hospital care received and suggestions for improvement. This may be obtained by means of interviews, questionnaires or suggestion boxes. A simple method is depicted here.

For more details on quality management see Chapter 2 - 'Planning and Management'.

Regarding financial management of hospitals see next section and Chapter 6 - 'Costs and Financing'. For aspects of material management and maintenance see Chapter 9 - 'Technical Services and Maintenance'.

5. Financing

Costs

Hospitals, including university hospitals and regional hospitals, absorb 40–80% of public spending on health in developing countries³⁷. This regularly provokes discussions about the need for and the usefulness of expensive hospital care, and often results in requests to shift a greater percentage of resources to primary health care at lower levels.

Table 3: Examples of recurrent expenditures of district hospitals (per year in USD)

Hospital	Researcher Year	Total recurrent expenditure/y	Salaries (share %)	Drugs, med. supplies (share %)	Donor funds (share %)
Kissidougou (Guinee)	Marx 1998	284,000	45.5%	21.1%	8.3%
Lushoto (Tanzania)	Kobb 1997	131,000	45.9%	20.3%	5.8%
Korogwe (Tanzania)	Kobb 1997	143,000	52.4%	19.5%	6.1%
Sengerema* Tanzania	Kapinga 1998	340,468	58.0%	25.3%	39.0%**

* Church-run district hospital

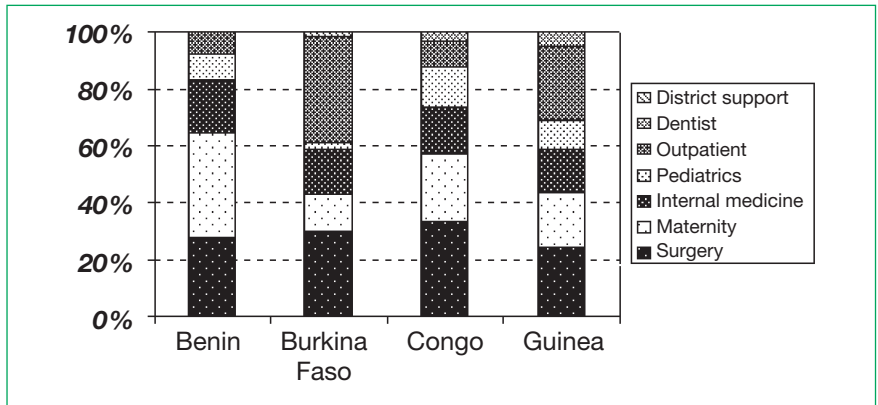
** including overseas missions

However, district hospitals are only responsible for a small part of the high level of spending on hospital care. At the same time, they are an integral part of the district health system and as such they have to guarantee a high degree of technical competence and require corresponding staffing levels. Since this is the prerequisite for ensuring high quality performance they are obviously and will always be relatively expensive.

For operational reasons it is essential to ascertain the level of recurrent expenditure. However, there are many studies on the

³⁷ Industrial countries have much higher health spending and more chronic disease problems, but the share accounted for by hospitals is slightly lower at 35–70% (F. Stierle (2000) Costs and performance of district hospitals – possibilities for rationalisation, action research in four African countries, GTZ)

Figure 2: Costs per department/cost centre (Stierle et al. 2000)



costs of district hospitals that come to conflicting conclusions. For a clear picture it is important to distinguish between those where only recurrent expenditure is studied and those where capital costs are included. Sometimes depreciation is not taken into account. The size, the number of beds and staff numbers also have an impact on the recurrent unit costs.

The analysis of the costs per department can also provide an interesting picture of the hospital's role as a referral institution. In this respect, surgery and obstetrics may be considered to be crucial, whereas the outpatient department may replicate the role of a health centre.

Financial Management

Obviously, a district hospital cannot be financed exclusively from income through user fees or from insurance schemes. The percentage of running costs that is covered by income generated by the hospital itself is generally reported to be around 5%, but can be as high as 15–30% (or even 40%)³⁸. It is advisable to assess individually to what extent a hospital is able to cover the running costs from its own income (from user fees, prepayment and insurance schemes).

³⁸ In Kissidougou Hospital, 40% of all running costs including salaries were covered by revenues/user fees (1996).

At district hospitals in Tanga Region (Tanzania)...

a study of costs and financial management (April 1997) pointed out that in one district hospital 35% of all patients should have been exempted from charges. In reality, 50–60% of all payments were exempted or avoided.

The figures on drug orders, prices and other outputs revealed that the 110 staff members and their families were consuming 0.9% of the monthly drug quantity intended for the entire population of the district (almost 270,000)³⁹.

Governments tend to allocate funds for the huge share of running costs (in some countries only personnel and drugs) and – mostly in cooperation with any donor programme – capital expenditure (buildings and utilities).

Fee schemes have to be well publicised and agreed upon with the local communities.

Insurance schemes and prepayment schemes may be ways of facilitating access to hospitals demanding fees for services. However, so far there are few encouraging examples.

In order to be accessible to everybody, including those who cannot afford the fees, the hospital has to practise exemption schemes. There is general consensus that chronically sick patients (TB, AIDS, diabetes) should be exempted from user fees. However, very often, the existing exemption schemes are not implemented properly. (For more details see Chapter 6 “Costs and Financing”).

In addition, special administrative barriers may be introduced, e.g. a minimum fee, to be protected against ‘unnecessary utilisation’ or over-utilisation by people who are not seriously ill.

A standardisation of fees within the district health system would be desirable. The DHMT may advocate this but eventually it is up to the individual communities to decide on the fee schemes of ‘their’ health facility. In any case, hospital fees should be in line with health centre fees. Reduced fees should be charged for patients transferred from the health centres to avoid a situation where the expenditure already incurred for treatment at the health centre and for the referral might jeopardise necessary further treatment at the

³⁹ The costs and financial management of district hospitals in Tanga Region: D. Kobb, Family Health Project, GTZ, Nov.1997

hospital. These subsidies should be financed within the scope of the overall district financing system.

Even the most sophisticated and comprehensive financing scheme can be compromised by the imposition of unofficial user fees, bribes requested by medical staff and the lack of any clear policy on exemptions.

6. Monitoring and Reporting

The hospital reporting system is an integral part of the district health information system. Indicators, records and forms have to fit into the national health information system. If the national reporting system does not cover the aspects considered to be essential for the quality of the hospital performance, the DHMT should adjust the set of indicators and activities accordingly.

In Benin and Guinea (Conakry)...

a comprehensive national health information system (NHIS) was established, with “semi-annual self-monitoring” as a key tool.

During this self-monitoring, data analysis was carried out at operational level by the staff involved in the monitoring exercise. This approach was considered as a management tool to identify problems and facilitate local corrective actions.

However, the quality of the data eventually provided cannot always be taken at face value. In Guinea, 15 years after the introduction of this monitoring exercise, complete familiarity with the data handling tools has enabled health professionals to manipulate data to an extent that makes it increasingly difficult to obtain a picture of the real situation.

If the set of indicators used in the official reporting system seems to be inadequate, the hospital management team or teams in the various departments should define additional indicators to monitor the achievement of targets they have set themselves.

The quality of data is crucial. In this computer era with an increasing flood of information, the reported data is quite often of

Table 4: Selected indicators to monitor the performance of district hospitals (3 examples)

	Savalou/ Benin	Savané/ Burkina Faso	Kissidougou/ Guinea	Comments
Target population	129,000	137,000	174,000	
No. of beds	86	53	100	
Inhabitants to bed ratio	1,500	2,585	1,740	Should be at least 1 bed per 1000 inhabitants
Total available staff (vacancies in %)	47	23	80	
Physicians	2–3	1	9	Should be three or more
Bed occupancy rate	45%	30%	80%	Ideally (cost/effectiveness) around 80%
Length of stay	6	6.5	6	Re-referral system is crucial
Available working time in hrs	1.2 / 6.6	2.4 / 38.1	2.2 / 13.3	
per no. of patients MD/clinical staff (productivity) Caesarean section rate f	2.2%	0.2%	1.3%	At least 2–3 % o all deliveries in the district!
Costs/bed/year (US\$)	2,400	3,200	3,700	
Costs/case (US\$)	59	118	47	
Costs/day (US\$)	12	18	14	

dubious quality and needs to be critically assessed. A data analysis in Tanga Region, Tanzania found a margin of error of the order of 30%–40%. It is therefore important not to be fooled by the apparent precision of figures⁴⁰.

Changing disease patterns and data regarding morbidity and age groups can be a starting point for research, which is needed to bring strategies, activities and health promotion into line with changing conditions.

Finally, when patients are transferred back from the hospital to the first-line health facility, the primary care facility needs to be

⁴⁰ According to D.Kobb (1994), 'Costs and financing of district hospitals, Tanga/Tanzania.

given feedback on the patient's illness, its cause and further recommendations. Therefore referral and retransfer forms should be produced and made compulsory.

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5. Human Resources Development

by Walter Seidel and Bergis Schmidt-Ehry

1. Introduction
2. Basic Staff Needs
3. Basic Training
4. Further Education
5. In-service Training
6. Staff Allocation
7. Remuneration, Motivation and Sanctions
8. Teamwork and Leadership
9. Policy and Politics



Meanwhile, most countries have introduced the use of PC technology at district level (Tanzania)

1. Introduction

The key to effective and efficient delivery of health care is to ensure sufficient numbers of highly motivated and well-trained health professionals. Without their motivation and commitment most programmes and projects are bound to fail. Human resources development is usually understood as a set of activities designed to improve the effectiveness, quality and efficiency of health personnel's action in the delivery of health care. The main fields of human resources development that have proved crucial are summarised below.

Numerous and voluminous books can be found on all of these topics, and we have included a few references at the end of this chapter. However, for the purpose of this book, we will concentrate on a limited number of lessons learnt.

While human resources development is, to a large extent, the responsibility of central government (e.g. through the establishment of appropriate schools, the design of curricula and exams, the steering of staff numbers and an appropriate salary structure), there are many things that can and must be done at district level (appropriate work organisation, staff deployment, leadership and good communication). Key lessons learnt regarding both levels will be presented in this chapter.

2. Basic Staff Needs

Developing staffing norms and ensuring that sufficient numbers of staff are trained to achieve these norms is a regular function of central government. Two typical but quite different examples come from Burkina Faso and Tanzania.

However, many countries still have no standards, while in others existing standards are ignored or not implemented because they are prohibitively expensive. One of the first steps in improving human resources development is to analyse these deficiencies and take corrective action.

Generally, few staff choose to work in remote or otherwise disadvantaged areas, and governments therefore tend to find it difficult to assign staff to rural areas. One approach frequently taken to deal with this problem is to make service in rural areas compulsory

Minimum Standards for Health Personnel in Health Facilities

Example Burkina Faso – Ministry of Health (1993)

CSPS (=Dispensary) Population < 10,000 inhabitants	3 employees (1 nurse, 1 aux.midwife, 1 auxiliary)
CM (=Health centre without theatre) Population < 30,000 inhabitants	11 employees (1 physician, 5 nurses/ midwives, 3 auxiliaries, 1 secretary, 1 technician)
CMA (= small hospital) Population 150,000 – 200,000	23 employees (2 physicians, 13 clinical and nursing staff, 1 laboratory technician, 1 dental nurse, 1 administrator, 5 technical staff and driver)

Staffing Levels for Health Facilities

Example Tanzania – Ministry of Health / Civil Service Department (2001)

Dispensary	5 persons (1 nurse, 1 nurse-midwife, 3 auxiliaries)
Rural health centre without theatre	29 persons (1 AMO, 3 clinical officers, 15 nursing staff, 3 allied staff (e.g. laboratory staff), 1 health officer, 2 administrators, 4 technical staff and driver)
District hospital	154 persons (including: 2 physicians, 13 clinical and nursing staff, 1 laboratorial, 1 stomatologist, 1 administrator, 5 technical staff and driver)

for the first year(s) after graduation. However, this results in low motivation and vacancies at times of low recruitment and neglects the importance of junior staff receiving technical supervision (which may not be available in isolated posts). In addition, it is in isolated posts where experienced staff are particularly important (unless a telecommunications-based system allows regular contact with experienced external staff).

A more appropriate and sustainable approach would be to determine market prices for health professionals in a given country and

Retention and recruitment of staff in remote areas

Example from Chad (1998)

In the context of a World Bank co-financed programme, the Government of Chad has launched a programme that attempts to retain staff in rural areas through innovative measures. Key elements of the programme are:

- provision of adequate housing;
- a binding contractual agreement that the secondary schooling and higher education of children will be supported through a scholarship programme.

Example from Brong Ahafo, Ghana

One important factor is undoubtedly the commitment of the members of district and regional management teams. They have to make a personal effort, for instance by advertising at training institutions.

Personal contact seems to be of prime importance in efforts to attract qualified health professionals to remote areas.

However, logistic and monetary incentives also need to be part of the package.

ensure that pay in rural areas is close to these market prices (particularly as there is usually much less scope in these areas for supplementing wages through private practice than there is in urban centres). In a health service that is unable or unwilling to pay close to market prices, personnel are likely to embark on private activities inside and outside the health service. These private activities can be so detrimental to service provision that the economic losses incurred may exceed the costs of paying decent salaries.

Non-monetary incentives may also make it easier to deploy and retain staff in rural areas, as illustrated by the example from Chad.

When planning these aspects of human resources development, complex factors must be taken into consideration, the planning must cover an extended period (10–20 years), and plans must be linked with ongoing or planned civil service reform programmes. This presupposes a thorough understanding of health service provision and of the essential concerns of staff, as well as close col-

laboration with other ministries (e.g. finance and higher education). Given these complex tasks, and the fact that wages and salaries account for the lion's share of health care expenditure in virtually every health system in the world, the Human Resources Development Department should be the strongest and best-equipped department in the Ministry of Health. The contrary is usually the case, and governments and donors ought to consider interventions to remedy this situation⁴¹.

Human resources availability should be considered a cross-cutting issue for planning of any health programme or health sector reform. The following short checklist may be used to examine key factors influencing human resources availability when considering health programmes and health sector reform:

- Do staffing norms exist, and do they represent a reasonable compromise between service needs and what the country can afford?
- Have the professional profiles for the various leading posts been defined, and do these definitions correspond to service needs in the districts?
- Is there an ongoing programme of civil service reform, and have consequences for the health sector workforce been analysed?
- Is the local “market price” of the health sector workforce known to health planners?
- Is the local “market price” for health sector workers close to official public service salaries (including all benefits)?
- Is there a defined and respected limit between private practice and public service?
- Has the country a defined policy of attracting staff to underserved areas, and does it appear effective?

The more “no” answers to these questions, the more important it is likely to be for a country to consider these human resource issues in the design of any health programme (e.g. the development of a comprehensive human resources development plan).

⁴¹ Interestingly, the health unit of the Development Directorate of the European Commission dedicated the first booklet in a series of technical and policy guidelines to “Human Resources in the Health Sector”. The conclusions reached tally closely with those presented here. See references at the end of this chapter.



Gender equality (Tanzania)

3. Basic Training

The conventional undergraduate training of doctors, nurses and midwives used to pay comparatively little attention to some areas that are essential for effective district health care, particularly:

- Applied epidemiology and public health
- The relationship between health services and their users
- Basic organisation and management
- Teamwork, leadership and communication.

Many countries have started to revise their undergraduate curricula to include these topics, but the crisis currently afflicting educational institutions in many African countries seems to indicate that few have yet been put into practice. Progress in undergraduate training remains crucial for the further development of district health services. Relevant newsletters and websites dealing with these issues are listed in the reference section of this chapter.

The following checklist of necessary inputs in the training sector may help identify needs for change and reform:

- Has there been an evaluation and/or a revision of undergraduate curricula for doctors, nurses and midwives in the last 5 years?
- Has primary care been accorded an importance at least equal to the more traditional clinical specialities?
- Has the teacher-student ratio in the training institutions increased (or at least not decreased)?
- Does it “pay” and is it considered worthwhile to work in training and human resources development?
- Do training schools have a budget for their own institutional development? Have they improved their training skills?
- Are there credible incentives and/or pressures on training institutions to improve their performance?
- Is there regular and formalised consultation between the Ministries of Health and the Ministries of Higher Education?
- Are peripheral health services, primary care providers and health service users involved in the design and redesign of the training of health professionals?

Again, the more “no” answers, the more important it is likely to be for a country to consider reforming basic training and redesigning its institutional set-up as part of a comprehensive health programme.

4. Further Education

Further training of executives for district health systems takes the form of the longer (usually one-year) Master of Public Health (MPH) courses, through specialised short courses and/or through thematic short courses that are usually organised by the central level.

National African universities increasingly offer MPH courses tailored to the needs of future district medical officers (see box below), and community-oriented courses also exist for allied health personnel and nurses (for example, the course offered by AMREF Nairobi, Diploma in Community Health).

Since 1999, the Institute of Public Health in Dar es Salaam, Tanzania, has been running a very successful one-year MPH course which, according to the last external evaluation in 2003, has achieved a quality level comparable to European public health schools.

Table 1: MPH and MCH Courses in Sub-Saharan Africa (2002)

Public Health (MPH) and Community Health (MCH) Courses offered in Sub-Saharan Africa					
Place	Duration (months)	Course time	Deadline for applications	Course fees	Contact
Dar es Saalam, Tanzania Institute of PH, UoDSM MPH	12	October-September	April	USD 10,000	Prof. Leshabari Tel.++ 255-22-2153371 diph@muchs.ac.tz
Moshi, Tanzania MPH , KCMC, Tumaini University	12	October-September	April	USD 8,275 (USD 10,190 for foreigners)	Prof. Shao Tel.++ 255-27-2754377-80 Jshao@kcmc.ac.tz
Kampala, Uganda	24	October-September	May	USD 6,000 per annum	Prof. Wabwire fwabwire@iph.ac.ug
Nairobi, Kenya Community Health Department UoN MCH	24	October-September	April-May	Ksh 450,000	Prof. Violet Kimami PO Box 19676, Nairobi violetki@comhlth.ac.ke
Kisumu, Nairobi in Kenya, MCH	24	Flexible	one month before start of cluster	USD 18,000	TICH PO Box 2224, Kisumu + 35 23972 tich@net2000ke.com
Ouidah, Benin Bessaoud	12	January-December	June	USD 13,940	Prof. Khaled Tel.++ 229-341674/75 irspadm@intnet.bj
Pretoria, South Africa	18-24 or part-time basis	Programme starts in January	August	USD 3,400	Dr Busi Radebe PO Box 667 Pretoria 0001, SA bradebe@med.up.ac.za

In African countries, short courses covering applied epidemiology, community medicine and health services management with a duration of 3 weeks to 3 months are offered by universities (e.g. the Tools for Health Managers course by the University of Nairobi) or by ad hoc trainer groups (CEGDAC in Cameroon). Courses are also available at various European and American schools of public health and collaborative efforts are ongoing for a modular MPH in International Health from different institutes of tropical medicine in Europe (TropEdEurop initiative).

An updated list of courses is available on the internet. (See reference section at the end of this chapter.)

Since 1980 donors have increasingly invested in “capacity-building”, mainly by financing training courses. Numerous short courses have been organised by central level units dealing with key health problems such as HIV/AIDS, family planning, childhood diseases, and organisation of vaccination programmes. It often appears to be more attractive to attend the courses (because of per diems and other incentives) than actually to improve workplace performance (for which no particular incentives were provided). Health services have frequently been closed because of staff attending workshops and seminars. The following conclusions have emerged from this experience: a) district managers should be involved in set-

Table.2: MPH course in Dar es Salaam: composition of courses (females, foreigners, DMO). The course is attracting increasing numbers of applicants from the East African region.

	Academic Year 1999/2000	Academic Year 2000/2001	Academic Year 2001/2002	Academic Year 2002/2003
Applicants	47	33	43	58
Applicants selected	21 (m 19 / f 2) Tanzanians 17 foreigners 4	21 (m 13 / f 5) Tanzanians 18 foreigners 3	25 (m 18 / f 7) Tanzanians 21 foreigners 4	29
Registered Participants	14 (12 / 2) Tanzanians 13 foreigners 1	15 (12 / 3) Tanzanians 15 foreigners 0	18 (13 / 5) Tanzanians 16 foreigners 2	18 (?)
DMO	Tanzanians 5	Tanzanians 7	Tanzanians 10	
Sponsors	MoH 10 Donors 4	MoH/DFID 15	MoH and donors 14, foreigners by their MoH, 2, Self 2	MoH 7 Donors 8 Self 1

ting training schedules (as they are the ones who have to look for substitutes), b) Ministries of Health should reject programmes that create incentives for training to the detriment of service provision, and c) donors and development agencies should not propose this kind of programme design.

There is also a general impression that formal standard courses and centrally organised training have had less impact on the activities and attitudes of trainees than might be expected. Apart from naive expectations of what could be achieved through training, the failure to involve district managers and the lack of links to the actual working environment of the participants may have played a role. Approaches with customised courses seem to be more efficient. Customisation means that the training institution works with senior health service staff as trainers, standard contents are adapted to the participants' and the services' specific needs, training takes place intermittently and tasks are set that are subsequently carried out by the trainees in their own professional environment.

Despite these critical remarks, it should be stressed that appropriate short-term and long-term training courses can be a powerful tool in motivating health professionals, and that a working environment that is receptive to the trainees' newly acquired skills may effectively contribute to improved service delivery.

When sending health personnel for training, the following issues should be considered:

- Did the course organisers specify the educational objectives of their training?
- Did the course organisers specify which level of basic training and which prior knowledge is required for the course?
- Are these educational objectives in line with the professional profile and the job description of the post and the person that occupies it?
- Are you aware to what extent the future trainee has already acquired the skills and studied the subjects to be taught?
- Do you have a substitute for the health worker during her/his time of absence?

The more "no" answers, the more you might want to reconsider a decision to send a staff member for training, until you have obtained the necessary information and made appropriate arrangements.

5. In-service Training

It is generally agreed that continuing medical education (CME) in the form of in-service training is an important part of district health service activities, and that it would be reasonable to dedicate about one-tenth of staff time and of recurrent budgets to this activity. It should be noted that many districts are still far from this target, and some senior health workers have not received any CME since graduating. This should increasingly be considered unacceptable. Before embarking on more comprehensive and complex quality management systems, this simple quality management tool should first be used.

As African districts cannot usually fund full-time training units, the districts have to rely largely on courses organised by the respective units of the central ministry or at intermediate level. (See previous section.) Many staff members in the district can become involved in organising continuing medical education activities, provided they are given an introduction to teaching and learning methodologies. The basic training of health personnel generally contains little formal training in teaching and learning methodologies, and some formal instruction in this field helps to avoid the usual mistakes made in adult learning, which often result in wasted time and staff frustration. Formal training in educational methodology has been organised in most countries (in Tanzania for example through the Centre for Educational Development in Health (CEDHA) in Arusha⁴²). If training of this kind is not available, or if staff cannot be sent there, the minimum would be to consult one of the well-written manuals in this field. (See reference section.)

Continuing medical (and managerial) education need not necessarily take the form of formal training courses, but can also be achieved through self-study (depending on the availability of books and access to the internet) and through group work on specific questions. However, people tend to reproduce their initial learning experience while studying, and might therefore prefer to request conventional courses and formal training sessions. Encouraging and demonstrating the benefits of self-study and group work may be an important task of a district manager, and s/he might be able to influence the prevalent learning culture to some extent. Whichever way

⁴² For contacts: CEDHA, Arusha, Tanzania P.O.Box 1162, Tel. 255278281, e-mail: ced-hatz@cedha.ac.tz



Islamic health centre in an integrated district health system (Tanzania)

the learning process is organised, the key objectives of the learning process (and hence of the training) are relevance (of the contents) and effectiveness (of the teaching process).

Relevance of Content

You can *increase the relevance* of a course by asking some simple questions that will help you to define your educational objectives:

- What are the exact and detailed activities you want to introduce or to improve? (task analysis)
- Are the subjects and skills that you are going to teach necessary and essential to perform a given task? (e.g.: Is it necessary to know the exact anatomy of the kidney to prescribe a diuretic correctly?)

- What do the trainees already know? (through basic training, prior courses, self-study or simple observation at the workplace)
- What exactly do they not know yet? (deficit analysis)

Effectiveness of Teaching Methods

Conventional front-stage (“chalk and talk”) teaching – i.e. lecturing without visual aids – is increasingly considered to be an ineffective teaching method since trainees tend to retain only a small proportion of what they hear. Using visualisation with drawings and/or text slides and handouts will *increase effectiveness* to some extent. However, it is important to follow some simple rules for *presentation and visualisation*.

- Can all participants read the visualised text? (not more than some 6 lines per slide, printed in font size of about 24 pitch)
- Is there an overload of information and text per slide? (A simple copy of a usual typewritten page should not be used as a slide: not only is it unreadable, but there is also too much information on one page.)
- Does the speech follow the visualised text (or vice versa)? (A wide discrepancy between the two usually diverts attention.)
- If you more or less read your visualised text: do you have as many minutes for your speech as you have slides? (One slide per minute is a lot. Try to reduce it.)
- If you discuss and comment on every slide: do you have at least five times as many minutes for your speech as you have slides?
- Did you do a test-run to see whether your lecture will fit into the allocated time? (Usually people try to teach too much in the time available. They either overrun, drop some – probably important – conclusions and key messages, or cut the time allocated for questions, discussions and other more active forms of learning, which are more effective anyway – see below).

For any “no” answers to these questions, try to adapt your presentation and visualisation aids.

The *most effective form of learning*, however, is to put students into an active position and help them to become masters of their own learning process. In practice, this means:

- helping students to perform the task analysis themselves;

- letting the learners define the skills and knowledge needed to perform the task themselves;
- helping students to perform their own deficit analysis with respect to the required knowledge and skills;
- getting them to define their own learning objectives;
- leaving room for group work, dialogue and self-study;
- allowing trainees to compile their own learning materials using books, journals and – increasingly – the internet. (A lot of training materials, some good and some less so, have been developed over the last few decades, particularly within the context of the large-scale WHO programmes to tackle childhood diseases (now combined in the IMCI). These can be used for training purposes; some are available to download.)
- reconsidering the role of the trainer, who becomes a facilitator rather than a teacher.

Organising learning processes based on these simple rules is already a major step towards *problem-based learning (PBL)*, a new learning method increasingly used in innovative training institutions. Changing teaching and learning practices from the conventional “chalk and talk” approach to active self-directed learning is not easy, and the necessary changes might require continued efforts over longer periods. However, the gains in learning effectiveness and improved learning skills that can then be applied to any other problem make these efforts worthwhile.

Using the Internet

What is the potential of the *internet*? Although the internet still resembles a large construction site, it will become increasingly important as a source of information, for self-study and for other forms of learning. Vast quantities of information have been made available in the fields of health and development cooperation in general. Good quality telephone lines are increasingly becoming available, and computers can be found more and more often, even in peripheral settings.

Technically, a modem is often all that is needed plus the funds to finance internet access and running costs for maintenance and consumables. Theoretically, the internet is a promising tool for learning in isolated places. In practice, its use is still limited and there are a

Using PCs at district level

Experience from Tanga Region (Tanzania)

The time has come to use PCs even in rural districts in Africa, although in some regions frequent power cuts can still be a problem. The new technology can cut workloads and ease communication, which is a great boon for isolated areas in particular.

Preconditions:

- Electricity,
- Hardware: IBM-compatible PC, e.g. Pentium III with monitor, 1,44" disc drive, CD-ROM drive, burner, UPS current stabiliser. The equipment should be covered when not in use.
- A dry room without sunlight and dust which is secured against theft.

Training should take place on the spot or at a nearby training centre equipped with 2–4 PCs. A qualified trainer should be available for follow-up sessions including maintenance of hardware and software (e.g. anti-virus programs). From each district four members (district health management team and hospital) should have

(1) basic training in

- | | |
|-----------------|---|
| ■ MS-WORD | Word processing, formatting |
| ■ MS-Excel | Spreadsheet calculation |
| ■ National HMIS | Data entry and reporting (health facility (HF) to DMO, DMO to RMO), analysing of indicators, feedback reporting to HF |

(2) Follow-up training sessions on the spot to be focused on two (more advanced) persons.

Experience shows that although motivation is high, progress is slow. Patience is vital. Personal training is preferable since learning software is not yet widely accepted.

number of obstacles, particularly lack of experience in using the internet and lack of good quality content that is easily accessible and appropriate to district health services in Africa. The time spent locating useful information might often be disproportionate to the information finally obtained. How could this situation be improved?

As a first step, and to gain more experience, training courses in basic computing and internet skills could be provided for district

health workers. A yet to be identified institution should provide continuous guidance on internet information for learning in the districts, and should help to select and structure the huge amount of information available. As internet access is only beginning to spread, utilisation of this medium is still in its infancy. Practical experience must be gained and controlled experiments (operational research) should be encouraged. In the reference section a few links are listed that give some initial guidance on available internet resources for district health systems.

6. Staff Allocation

The organisational set-up and allocation of staff and of work are critical in human resources management. Obviously over and understaffing are both detrimental to the quality and efficiency of

The District Hospital in Nkongsamba, Cameroon...

launched a reorganisation process in 1995 by redefining the tasks of all departments and staff members of the hospital. Based on epidemiological considerations and prior service data, staffing norms, job descriptions and professional profiles based on effective workload were drawn up, and the workflow between the different staff categories and hospital departments was redefined.

- The district and hospital management teams involved all hospital employees in this process. Their suggestions were taken into consideration. After a test phase of approximately 6 weeks, a staff commission that met regularly elaborated decisions on the jointly agreed staffing norms and on redeployment of staff. The administrative district authorities accepted the Commission's decisions.
- At the end of this process, half of the 100 district hospital staff were redeployed to other services in the district. The adapted and mutually agreed job descriptions became the basis of a new monitoring and quality management system.

Alongside other improvements (increased internal transparency and improved patient information), these activities generated greater job satisfaction among hospital staff, improved the quality of services and increased utilisation rates.

work. In rural areas in particular the lack of qualified staff is a serious problem. The decentralisation process may provide some opportunities for improvement, as experience in Ghana has shown.

Professional profiles and clear job descriptions should exist for all categories of staff, and discrepancies between “theoretical” job descriptions and “real” work profiles should be identified and rectified if necessary.

A complete revision of job descriptions and a fully-fledged redistribution of work may not be feasible. Many planning exercises in these areas have remained on the drawing board and have had little impact on real work performance. However, results could be generated by an analysis along the lines of “which three of our activities are not so important, and which three essential activities are we neglecting” and by subsequently shifting resources to the latter.

The unique feature of human resources management is that it deals with human beings, who are very different from other types

The right person in the right place

The physician Dr. X works in the district hospital, where he is Head of the Paediatric Department. He has a hearing impairment, and this disability might have contributed to his difficult relationships with his colleagues. His performance as a paediatrician is unsatisfactory.

In a personal interview with his District Medical Officer, it becomes clear that he did not choose to become a doctor. He did so only to please his parents. He talks about his hearing impairment, and states that he finds inter-personal relations at the workplace difficult. As his specific area of interest he names computing and data processing.

Following this interview, the DMO moves Dr. X to the district health office and assigns him the task of compiling the district’s activity data and producing the district’s annual health report. His hearing impairment is alleviated through the provision of a hearing device, financed through funds of an external project partner.

Dr. X takes over his new task with great enthusiasm and at the end of the year the district has (for the first time) a comprehensive report with valid data on all health centres and the district hospital. Probably for the first time also, Dr. X gets positive feedback on his work and becomes a committed and respected member of the district health management team.

of resources. Human resources management is very much about ensuring that “the right person is in the right place”. It therefore needs to look at health professionals as individuals, and take their problems and potentials into account. The following case can be considered as an example.

7. Remuneration, Motivation and Sanctions

Remuneration has been recognised as another crucial bottleneck in the effective and efficient delivery of care. Low and irregular pay have sapped motivation, as have shortages of drugs and other inputs. Health services that are not in a position to pay close to market prices for health personnel are confronted with low productivity. Private and unofficial practices (under-the-table “fees”, private utilisation of public drugs, consumables and equipment, absence from the workplace for private practice, etc.) have become common practice in many countries. Further damage has been done by the frequent lack of rewards and sanctions for good and bad performance respectively. Active measures to restore the principles of good practice to service provision will frequently be needed. These could include (once reasonable basic salaries are ensured) the introduction of rewards for good performance, and the imposition of sanctions for bad performance and misbehaviour (including the option of dismissal).

In health districts of Mahajanga Province, Madagascar...

additional locally generated income from community co-financing schemes was used to give health professionals incentive payments. These payments were made on the condition that a set of performance criteria would be implemented, including:

- defined opening hours of the health centre
- interdiction of any additional charges
- participation in the joint management committees.

These conditions were fixed in a contract between the community’s user association and the health service.

Although district health managers depend largely on the degree to which national governments have embarked on civil service reforms, certain improvements have already been implemented at district level. Some district health services have been helped by projects to make more systematic use of human resource management tools that have been developed in industry and in the private sector. Mission statements, agreements on performance targets with every employee, positive incentives such as fast-track career advancement and access to further education and awards are increasingly being adopted.

Some authors have suggested linking salaries to activities and performance. Even if it appears logical to do so, there has been little experience of this in African countries, and experiences from other parts of the world indicate that this can have major drawbacks including a tendency to over-diagnose, over-prescribe and other forms of over-medicalisation that may be caused by inappropriate incentive systems.

Performance linked remuneration...

may have very controversial effects as the following examples demonstrate.

- In India in the 1970s health personnel were paid on the basis of the number of vasectomies and tubal ligations they performed. This led to coercive practices vis-à-vis health service users (some of whom were sterilised against their will or on the basis of incorrect information). The programme came under strong criticism and was abandoned.
- In many industrialised countries, doctors in private practice were paid on the basis of the number of consultations and activities they performed. This led to a substantial increase in activities and acts, which could not be controlled. Many of these countries have now shifted to some form of capitation fees.

In any case, remuneration linked to activities should complement a reasonable basic income, and the design must avoid the drawbacks described above. Given the potential problems with activity-based remuneration it should be considered a human resources management tool of lesser importance when weighed against many other measures.

8. Teamwork and Leadership

For some time now, promoting teamwork and leadership skills has been identified as an important way of keeping motivation and performance high. It must be emphasised that in spite of extremely adverse working conditions there are still many health professionals at all levels, leaders and teams, who are committed, perform excellent work, and who are interested in any new initiative that aims to improve health care performance.

The decentralisation process provides an opportunity: by transferring responsibility to the periphery and lower levels, the commitment of health professionals is strengthened. Acknowledgement of the daily work of health teams in the health facilities, particularly by their leaders, becomes a positive aspect of human resources development⁴³.

Leadership in health services...

means enabling the teams in health facilities to face challenges and achieve results in complex and difficult conditions. Managers at all levels who offer effective leadership apply eight functions in their work.

Leadership

- Scan the environment (What is going on and what has changed?)
- Focus attention and resources (What people should pay attention to)
- Align and mobilise other people and resources.
- Inspire others (People's commitment to new goals)

Management

- Plan
- Organise
- Implement
- Monitor and evaluate

(Source: THE MANAGER (11/2002), Boston)

⁴³ The box is taken from THE MANAGER (11/2002) "Exercising leadership to make decentralization work"

Despite many cultural differences, a set of principles of good practice and management approaches are accepted (but not followed) almost universally.

- There should be some reward for good performers, and sanctions should be imposed on poor performers (which is true for all levels of the health service).
- Executive staff must demonstrate credible concern about the quality and quantity of services delivered. Heads should “practice what they preach”, i.e. they should adhere to the norms they have established⁴⁴.
- Each health worker should be considered as an individual. Emphasis should be put on potentials and capabilities rather than on deficiencies and weaknesses. Regular (e.g. annual) personal interviews can help to develop this relationship.

A performance monitoring system... (example in Ghana)

has been introduced in Nkongsamba District, Ghana. The performance of all employees is individually monitored on the basis of detailed job descriptions. The evaluation criteria are well known to all. Special efforts are made to keep the system transparent and objective: alongside the leaders all colleagues/team members are involved in the assessments. The summary note is outlined by the DMO.

- Apart from team objectives, individual performance objectives should also be formulated (e.g. in relation to increases in service utilisation, coverage or workplace hygiene). Health professionals should be accorded the degree of autonomy and responsibility they need to allow them to achieve these objectives.
- Critical analysis and self-appraisal by the teams should be encouraged. This can be done through a supportive style of supervision.
- For more user-centred health services the client approach is increasingly used.
- Teams should meet regularly, as should individual staff with their superiors, to agree on specific service objectives, on ways of

⁴⁴ Human resources management in many countries suffers from a special culture of double talk, where in official speeches most impressive advances are projected, whereas in private it is admitted that little if anything is likely to be done.

achieving these objectives, on how to communicate with each other, on how to handle conflicts and on how to monitor progress in target achievement (quality circles).

A participatory process of examining how to put these principles into practice can in itself trigger considerable changes within an institution.

9. Policy and Politics

It is well known that human resources development is highly political, and that many of the changes needed have to occur at national level. Some may even lie outside the health sector. But with decentralisation of society, the districts are being granted increasing responsibility. The most difficult task in a given district may be to define the appropriate extent of leeway for action and change, and then to concentrate scarce resources on areas where change is most likely to be brought about at minimum cost.

If the above suggestions for improved human resources development were to be arranged in order of their relative importance and effectiveness, the following sequence would be established (although this can vary depending on specific values and priorities within a given society or culture):

- There should be a framework that clearly promotes good performance and imposes sanctions for bad performance. (Why should one bother, if everybody is treated the same way?). The type of incentive (verbal encouragement, salary increases, awards and prizes or other) is secondary as long as the incentive system is equitable. Dismissal for gross misconduct must be a real option.
- The Government should demonstrate credible concern about public service delivery. Governments must actively counteract attempts by the workforce to treat the public health service as a social security institution for its employees.
- The right man/woman in the right place - human resources are individuals and should be treated as such. Frequently insufficient use is made of the intrinsic motivation and individual capacities of staff members.
- And finally, career advancement and pay should have some relation to performance. To this end, performance targets need to be defined and monitored.

However, all these measures can only work on the basis of salaries for health professionals that are close to market prices. Otherwise health professionals will turn to private practice or to other sectors or countries, as can be seen in many health systems.

Further Reading

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WHO (2003) Initiative of "Towards unity for health" and the former "Network of community-oriented educational institutions for health sciences"

<http://www.network.unimaas.nl/> The participating institutions of the Network have over 20 years experience of collaborative work on linking training in health to communities' needs and of applying the latest developments in PBL to undergraduate and further training and education in health.

6. Costs and Financing

By Friedeeger Stierle, Gerard Servais and Helmut Goergen

1. Context and Concepts
2. Costs and Cost Analysis
3. Who Pays?
4. Financing
5. Provider Payment Arrangements
6. Financial Management



The introduction of user fees requires the involvement of the communities (Tanzania)

1. Context and Concepts

Until the end of the 1970s, governments of most independent African states assumed the responsibility both for financing and providing health care services. Generally, finances were made available through national budgets, and health care provided by public services was free of charge for all citizens. In faith-based services and other private non-profit services, however, patients have always had to pay for most curative services.

In the 1970s, many sub-Saharan African countries went through a period of economic crisis and structural adjustment, often combined with poor governance. In some cases, further social and/or political crisis or disorder developed. As a result, not all governments have had the ability or willingness to increase spending in the health sector, to improve spending efficiency or to increase equity. Government spending on social sectors failed to keep up with population growth and to respond adequately to increasing health needs (e. g. HIV/Aids) and demands. Parallel to this, the quality and responsiveness of many health care services has nosedived. Since poverty has remained on the increase and the economic situation of many households has continued to deteriorate, care has become less and less affordable for a growing number of people, especially for the poorest of the poor.

During the 1980s, the ideas of “cost-sharing” and “community financing” (the “Bamako Initiative”, which began in 1987) emerged. Many countries started to resort to the widespread implementation of formal or informal direct payments imposed on the users of public health care services (= user fees). However, to a large extent these schemes have failed to meet expectations with respect to additional resource generation, improvement of quality of services and the predicted increase of health service utilisation. On the contrary, a dramatic and sustained drop in the use of services was observed in many cases.

Partly in response to these problems, and following the entrance into the labour market of a growing number of health professionals who could not be absorbed by the public sector, a private, profit-driven health care sector emerged. Particularly in urban areas, this private sector has mushroomed – often not regulated at all, and frequently producing mediocre care at vastly inflated prices. By contrast, the not-for-profit private sector (mostly religious and charity

Health and (in)equity

- Health inequity
describes differences in opportunity for different population groups which result in unequal life chances, access to and utilisation of health services, nutritious food, adequate housing, etc. These may lead to health inequalities.
- Health inequality
by contrast, describes differences in health experience and health outcomes between different population groups – according to socio economic status, geographical area, age, disability, gender or ethnic group.
- Equity
is a term frequently used, though usually extremely loosely. Equity is an ethical concept grounded in the principle of distributive (social) justice, or fairness. Although a related concept, it should not be confused with equality (= equal status).
- Equity in health
A variety of possible definitions exist. In operational terms, pursuing equity means eliminating health disparities that are systematically associated with underlying social disadvantage or marginalisation – in other words: reducing unequal opportunities to be healthy.
It is generally accepted that equity exists when utilisation of health services is in accordance with need, and financing schemes are based on the ability to pay.

organisations) has long been perceived by users as providing good quality services, and thus an attractive alternative to public services.

Increasingly, approaches to and instruments for better collaboration and cooperation between the public and private health services are being developed and tested. The process of decentralisation, pursued in many countries, provides health districts with new opportunities for adequate health service financing, management and responsive provision of services.

District Health Financing

District health financing aims to assure adequate funding for all health care services in the district, provided they are shown to be

necessary, effective, and economical⁴⁵. This implies that explicit health goals for the district should be defined. Funding requirements need to be assessed in line with agreed health goals, and appropriate resources need to be generated and mobilised. Moreover, the funding source for these resources and the specific payment procedures used should be stated explicitly. This means that it is also necessary to agree on the social goal (equity) that is to be pursued by the district health financing system.

Thus the questions that are at the very heart of health care financing can be put as follows:

- What services should be produced to achieve what health goals?
- How much do they cost?
- Who gets what?
- Who pays?

District health financing should aim to free up a maximum of local potentials and therefore include all private and public service providers in, and resources of, the district. Poor districts, however, may not be able to cater for all of their health care needs. Therefore, the concept of decentralisation has to be complemented by the principle of “subsidiarity”⁴⁶. This principle dictates that social problems should be solved at the lowest level possible, and that (central) government authorities should step in if private care systems, communities or lower levels of authority fail to deliver on shared social goals, or are unable to solve apparent problems. Since health districts, in most instances, cannot generate sufficient financial resources for adequate services, the national level has to assure adequate funding for all districts through national subsidies or through equalisation mechanisms between rich and poor districts. Financial resources from outside the country may complement local and national sources.

Usually, the general management of the health district (the “district health authority”, the “district health management team” – supported by the respective local/district/regional administration) is responsible for planning, managing, coordinating and evaluating the

⁴⁵ “Economical” includes technical efficiency and cost-effectiveness considerations which have to be traded off against allocative efficiency and equity considerations.

⁴⁶ There is no obvious English equivalent for this technical term stemming from European social theory, but it is best translated as the principle of supplementarity.

Resources, Cost, Price, Tariff, Expenditure

- Resources
are factors of production (or inputs), such as land, labour and capital. The combination of these factors determines whether it is possible to achieve an optimum result, or expected level and quality of outputs.
- Cost
reflects the value of the resources employed, or sacrificed, to obtain (produce) a certain good or service.
- Opportunity cost
reflects the value of the sacrifice involved in giving up alternative opportunities when a choice is made to use resources in a particular way (choice is exclusive by nature!). In other words: it reflects the value of that which must be given up to acquire something else. For instance, setting up a mobile district vaccination team may mean sacrificing permanent staff availability in health centres.
- Price
is the exchange rate which is obtained for a good or service on the market. The monetary price is – sometimes – a good indicator for opportunity costs. A price may be equal to, or lower or higher than, the cost of production. If the price is higher than the cost, a “surplus” has been achieved which corresponds to a “profit” in the commercial world.
- Tariff
is a unilaterally fixed price (or “administered” price list) on goods and services. A tariff does not necessarily reflect the costs of production or the market price. The reason for fixing prices is to either encourage or limit the use of certain goods or services.
- Expenditure
is in fact a term of accounting. It indicates an amount of money used for certain purposes (disbursement of a cash point, of a budget). Expenditure does not necessarily reflect prices or costs.

financing and provision of services. The legal basis and mechanisms for the implementation of rules are usually laid down in by-laws, decrees, etc. The characteristics of such a district health financing system can be summarised as follows:

- *The objective* is to mobilise the necessary resources and to assure their efficient use, and to guarantee equitable access to quality

health care for the population in need. The financial burden is related to the ability to pay.

- *The resources* comprise inputs by central government, cross-subsidies from other districts, locally generated resources from communities, employers, households and users, private donations, and other resources such as external aid. Health districts should pool their resources as far as possible, and use them as effectively as possible.
- *Transparent management of resources* can be ensured at district level through the use of modern management methods, including integrated planning and budgeting. Possibilities for efficiency gains can be identified, and a more rational and responsive use of resources can be achieved. This also includes active involvement of citizens, civil society and sponsors.
- *Effective financial control and auditing*, including participatory methods, can contribute to the correct use of resources and lead to increased accountability of decision-makers and managers.

2. Costs and Cost Analysis

Costs in a district health system arise on the part of health care providers (the producers) and on the part of its users (the consumers). Health care providers have to cover the costs of their personnel, buildings, equipment, material, supplies, etc. Users incur not only material costs such as transport, drugs, fees, taxes, lost time and income due to illness, but also immaterial costs such as pain and psychological distress. Therefore, it is most important to state explicitly the approach to be taken when analysing costs.

“This costs that much” does not tell us much since we do not know who has to bear what costs. Is it the health care services, the district authorities, the community, the individual, the household, the employer, or society at large? In the public sector, generally, the most common approach is to consider the overall costs borne by the community, or society – not only the costs borne by a specific health care institution or the district health services as a whole.

The box above provides definitions and explanations of some important terms, which are sometimes used in a confusing manner.

Cost Analysis: Why?

There are various reasons for analysing costs. First, different options for the production of services can be compared. Second, appropriate budgeting for any level and type of services is only possible if costs are known. And third, cost analysis is used for monitoring, evaluation and auditing.

In itself, knowledge of the costs of services contributes to more cost-conscious behaviour by district health personnel and managers, and is the basis for cost control. It may be useful to compare the evolution of costs over time (e.g. the yearly costs of a district vaccination campaign), or to compare costs of different kinds of services (e.g. costs of vaccinations delivered through mobile services versus fixed centres), or to analyse the relationship between size and costs of services (e.g. costs of vaccination in health centres of different size). Before services are added, increased, removed, reduced, or contracted out, it is worthwhile to assess the cost implications of doing so. Cost information may provide valuable information to improve productivity and coverage of services, and to rationalise the use of available resources. In this context it is important to point out that rationalisation does not mean reducing resources, but guaranteeing an optimum use of resources. In order to allocate resources in an equitable way, it is necessary to compare health care expenditures in different contexts and environments (e.g. rural versus urban settings, poor layers of society versus richer groups). Cost-effectiveness, cost-utility and cost-benefit analyses (comparison of costs and effects/benefits of different health interventions) are, generally, not carried out by district health services, since these types of studies require specific knowledge and considerable resources.

Categories of Costs

Costs can be classified, or categorised in different ways. The most commonly used primary classification is by type of resources or inputs, such as capital and recurrent costs (see below). Possible secondary classifications are by 1) function or activity, 2) by administrative level, 3) by source of financing, and 4) by currency (foreign, local). Whatever categorisation is used, it must be relevant to the particular situation – and, most importantly, accurate. Classes or categories of costs must cover all costs, without overlap. For instance,

a primary cost category (or budget line) “administration” would include costs for salaries, buildings, equipment and supplies. If another primary cost category “personnel” were to be used simultaneously, the danger would be that salaries might be double-counted, resulting in incorrect cost information.

Direct Costs and Indirect Costs

Direct costs are costs that are directly linked to a treatment, or a health service rendered. They may be incurred either by health care providers (personnel, buildings, supplies, etc.), or by patients and their families (direct payments, fees, care provided by family members, etc.). Indirect costs are costs that are only linked indirectly to an episode of sickness, or a health care service rendered. These may be borne by patients and their families, such as transport, working time lost, psychological costs (pain, stress, fear), or by society/the community at large. Indirect costs incurred by society or the community at large include, for instance, costs for safety measures at work, or measures to reduce road accidents. Direct (financial) costs are of special interest for management and budgeting of health care services. Indirect and direct costs are more relevant in the context of economic evaluation, such as cost effectiveness studies which use the concept of opportunity (economic) costs.

Fixed and Variable Costs

Decisions taken in the past on increasing capacities for health care (e.g. new or improved health centres) have resource implications for the future. Unfortunately, decision-makers often tend to forget this fact, or choose to ignore it. Costs that are directly related to the level of activity, i.e. to the number of output units produced (e.g. number of patients treated), are called variable costs. These include, for instance, the costs for drugs, food, and supplies or for materials used during surgical interventions. Variable costs may change very quickly over time.

Costs that have to be covered irrespective of how much output units are produced are called fixed costs, or sometimes overheads. Bills for electricity, salaries for personnel, maintenance costs, repayments for credits, etc. have to be covered, whether or not patients use a district facility. Fixed costs vary little over time – unless a health centre is closed down, personnel made redundant, vehicles retired, etc. However, in the long run, all costs are variable.

Average and marginal cost

- Total cost (TC) = fixed cost (FC) + variable cost (VC)
- Average cost (AC) = total cost (TC) / units of activity
- Marginal cost (MC) = change in total cost when one more unit of output is produced.
- Example:

Change of average and marginal cost, when a district vaccination program increases coverage (“production”) from 2,000 to 2,500 vaccinated children. Assumptions: no extra staff are needed, but the children to be vaccinated additionally live in remote areas (= more km to be driven by mobile vaccination team)

Cost per month	Actual situation 2,000 children	Future situation 2,500 children
Salaries	€ 400	€ 400
Cost of vaccine (0.05 € per dose)	€ 100	€ 125
Transport costs (0.8 € per km)	€ 240 (300km)	€ 480 (600km)
TOTAL	€ 740	€ 1,005
Average cost per vaccinated child	€ 0.37	€ 0.4

The average cost per vaccinated child only increases from € 0.37 to € 0.4. However, each additionally vaccinated child (500 children) costs an extra € 0.53 (marginal unit cost).

Calculation: $€ (1,005 - 740) / 500 = € 0.53$

Relationship between Costs and Outputs

There is a complex relationship between the quantity of inputs/resources (staff time, drugs, equipment) and the quantity of output units produced (patients treated, children vaccinated, etc.). The number of outputs produced may rise slower, faster than, or at the same rate as the respective inputs. If the production is stable, the average cost per output unit also remains stable over time (e.g. cost per hospital day in a district hospital). However, the level of production (number of hospital days) may change over time. Generally, if the production is increased (starting from a low produc-

tivity level), the cost per produced unit goes down until a certain level of production is reached. Above that optimum level of production (optimum mix of inputs) the cost per extra produced unit may increase again. The cost of this additionally produced unit (e.g. 1 additional vaccination) is called the marginal cost. It is this marginal cost – not the average cost – that needs to be considered if a certain level of activity (e.g. number of children vaccinated, number of hospital beds) is to be increased or lowered.

The box above provides some more information on this relationship.

Capital Costs and Recurrent Costs

The creation or extension of production capacity (construction of a health centre, purchase of a major piece of equipment, basic personnel training, etc.) entails capital, or investment costs.

In terms of budgetary expenditure, the term “development budget” is used. Generally, capital costs cover items that have a life expectancy exceeding one year as well as a price in excess of a fixed limit (mostly equivalent to about \$ US 100, or (increasingly) € 100 € (or a similar amount)). Recurrent costs – sometimes also called operating or running costs – are linked to the day-to-day utilisation or operation of this investment (e.g. medical equipment). These include salaries, supplies, electricity, water, maintenance, in-service training, and items worth below \$ US 100.

Table 1: Distinction between capital and recurrent costs (Stierle, Kaddar et al.)

	Recurrent	Capital
Features	Service life of less than one year	Service life of more than one year and cost in excess of USD/€ 100
Types of goods	Items that are needed to operate the production capacity, consumables	Items that create capacity for production, large equipment
Synonyms	Operating, or running costs	Investment, or development costs
Examples	Drugs, salaries, consumables, electricity, telephone, continuing training	Vehicles, buildings, radiology equipment, basic training, etc.

In budgetary terms, recurrent costs correspond to the operating budget, i.e. costs which are - necessarily - incurred each year.

Variable costs and recurrent costs are related, but not identical.

Amortisation or annualisation of capital costs is a method of spreading these costs over a period of several years (commensurate with the service life of the piece of equipment or the building). There are various methods for annualising investment costs. The simplest way is to divide the purchase price by the (probable or official) service life to obtain a linear amortisation. Most annualised capital costs are fixed costs.

A “Forgotten” Type of Costs

This cost category includes so-called “*hidden*” or “*additional*” costs that have not been mentioned in the budget and require “*real location*”, or in other words incorporation into the appropriate budget lines of the district health system. Hidden costs are, for instance, costs that are borne by sources outside the given (district) finance system, e.g. by foreign development agencies or donors. Hidden costs often consist of personnel costs for the employment of foreign development workers, or voluntary local aides, but in most instances they relate to investments (cars, buildings, equipment) or expensive supplies (e.g. drugs) provided by externally financed projects or programmes.

Costs for personnel, equipment, buildings or other items that were initially borne by another source of financing (e.g. by a national vaccination programme, or UNICEF), need to be integrated into the district health system (“*reallocation*”) to ensure that they are covered by district finances in the future when external funding is discontinued. These costs are considered as additional costs for the existing district health system and put an extra strain on recurrent costs. As a result, they may endanger sustainability of district financing. Moreover, these additional costs often need to be covered in foreign currencies, making it even more difficult to cover them in the long run.

Cost Calculation

Cost calculation, or costing, is a simple task - at least in principle. However, it is quite cumbersome and sometimes boring, since accurate data is frequently lacking and difficult to collect.

Before starting a costing exercise four sets of *critical questions* need to be answered:

1. Why? What is the objective? Will the cost information be used, and how?
2. Costs for whom? What is the perspective – that of the patients, of the district health services, or others?
3. What is the method for calculations and analysis?
4. What are the information sources used/available?

It is important to remember that the analysis of costs has its own cost. Consistency and a realistic approach are key. Other issues of costing include: Have all relevant health services been identified (units, cost centres of district hospital, etc.)? Have all the details of the activities/programme been described that are to be analysed? Has it been established that all additional resources requested are actually needed? Will the activities/programme be financially viable, i.e. are they effective and efficient?

Finally: results of costing exercises *rarely* tell us what to do. Instead, they often contain valuable information that helps us to ask the right questions to identify adequate steps to improve services.

Steps in Cost Calculation

When engaging in a costing exercise, the following steps should be followed:

- All resources and inputs used to produce the services in question need to be identified (different types of staff, equipment, building, transport, drugs, supplies, utilities, etc.)
- The number of units of each input type used has to be assessed (hours of working time per staff, km driven per vehicle, water used, surface of building used, etc.). A monetary value has to be put on each input unit (\$ per monthly salary, \$ per driven motorcycle km, \$ per drugs used for each surgical intervention, etc.)
- The total of all inputs has to be calculated (total costs of drugs, salaries, transport, continuing and basic training, annualised costs of buildings used, etc.)
- The production unit(s) has/have to be specified either by type of activities (number of treated patients; bed days, deliveries, etc.), services (prescriptions, x-rays, etc.), or by cost centres (hospital ward, health centre laboratory, district management unit, etc.)

- The total costs of each type of input have be allocated to the production unit in which they have been used (m² of hospital ward x, share of total drug costs of health centre y, share of staff time per type of activity, etc.)
- A measure of production has to be used to calculate the average cost per produced unit (cost per delivery, cost per patient day, cost per vaccination, etc.)

Problems Encountered in Cost Analysis

Cost calculation is riddled with a wide range of conceptual and methodological problems and pitfalls which may jeopardise the validity of results or may hinder their adequate interpretation. They include the adequate identification of objectives, the quantification and valuing of resources, the measurement of results, the consideration of visible and hidden costs, and the issue of viewpoint: costs for whom?

Other methodological problems include:

- The omission of important costs such as development and capital investment, basic training, salaries of expatriates, maintenance costs, administration, theft, and loss.
- Failure to annualise (amortise) capital costs over the service life.
- Failure to make a clear distinction between capital and recurrent costs.
- Inaccuracies in the allocation of different activities to cost centres/service units.
- Failure to reallocate already available and additional resources (hidden costs).
- Failure to apply discounting and inflation factors to future costs.

Table 2: Examples of the service life of items of equipment (WHO).

Type of item	Service life (in years)
Health centre	25
Motor vehicle	10
Refrigerator	10
Insulated box	5
Ice machine	5
Refrigeration accumulators	5

- Application of measurement units that cover composite costs such as “administration”, “examination”, thereby running the danger of double-counting.

Examples of what to consider when calculating costs

Salaries: Gross salaries have to be considered, i.e. salary costs should include taxes and relevant insurance contributions. All bonus payments and allowances as well as fringe benefits (accommodation, free treatment, etc.) are to be included.

Electricity and telephone: these costs of are often omitted from the calculation, since they are frequently not paid by the health structure itself (hidden costs).

Investment costs: It is sometimes difficult to assess the actual value of buildings or equipment (the replacement cost should be used to annualise capital costs). For buildings, the value should be calculated on the basis of the actual price per 1 square meter of a comparable building (figures usually available from the Ministry of Works). For equipment, the invoice, or price list of the manufacturer needs to be checked to determine the price of replacing the equipment.

Allocating costs across various programmes or services: If some staff work for more than one programme (e.g. for the EPI and the TB programmes), salaries should be divided between the respective programmes in line with the working time spent on each programme. The annualised costs of equipment or vehicles can also be divided in this way. For buildings, the part of the building used for each programme needs to be included in the calculation.

Table 3: Treatment costs of some tracer conditions and specific services. Boromo District Hospital, Burkina Faso, 1998 (1,000 FCA = 1.3 USD)

Delivery without complications	8,069 FCFA
Caesarean section	161,057 FCFA
Hernia, surgical intervention without complications	97,184 FCFA
Hospital stay (paediatrics)	22,234 FCFA
Hospital stay (medical ward)	48,452 FCFA

Table 4: Average annual costs of health facilities in Tanzania⁴⁷ (prices in USD, 1999): 4 district hospitals (between 134 and 371 beds), 4 health centres and 4 dispensaries

	Hospital		Health Centre		Dispensary	
Recurrent costs	330,800	(81%)	27,000	(67%)	9,100	(75%)
Personnel		43%		45%		34%
Drugs, consumables		21%		16%		31%
Miscellaneous costs		17%		7%		10%
Investment costs	80,000	(19%)	13,000	(33%)	3,000	(25%)
Infrastructure		16%		30%		22%
Equipment		3%		3%		3%
Total	410,800	(100%)	40,900	(100%)	12,100	(100%)

Examples of Costs of Services

When planning medium and long-term expenditures it is vital to have reliable data on the costs of health facilities in a health district. What are the costs of the district hospital, a health centre, or a dispensary? Here are some examples. However, the costs of a health facility will vary enormously depending on its size, level of technology and staffing patterns, and also the price level of the respective country (Table 3).

The same service may be provided cheaper in a health facility with lower level services. This example makes a strong case for treating patients at the adequate service level. Important cost savings may be achieved without jeopardising quality of care (Table 5).

Table 5: Unit costs per level of care/type of health facility (Tanzania, 1999, in USD)

Type of Activity	District Hospital	Health Centre	Dispensary
Consultation, outpatient	4.86	0.82	0.83
Antenatal check-up	1.57	1.25	0.63
Delivery	23.83	20.05	4.44
Full child vaccination	3.14	6.85	4.37
TB treatment	16.31	24.29	7.60

⁴⁷ HERA (1999) Health Care Financing Study in Tanzania – Costing Study of Health Services, Dar es Salaam and Reet, Belgium

3. Who Pays?

On the one hand, a health district financing system must take into account the costs of health services, and on the other, the economic and financial capacity of the populations to be served. If health services are not free at the point of delivery, prices to be paid must be appropriate to the economic and financial situation of individuals, households and communities in the district. Otherwise the services will not be financially accessible to all, and particularly marginalised groups of the population such as the poor and vulnerable will be excluded. Therefore, those responsible at district level need to have a clear picture of the economic and financial situation of the population, either by studying data already available, or by conducting special surveys.

It is very difficult to get accurate information on *the monetary and non-monetary incomes and assets* of individuals and households. In rural areas and subsistence economies, non-monetary types of income prevail, e.g. land, house, livestock, crops and domestic animals. Monetary income or financial reserves may be rare or non-existent. Moreover, distribution of incomes and assets often varies enormously across regions and population groups. Household surveys may provide useful information to assess the actual situation.

The share of wealth (or gross domestic product, GDP) spent on health care varies considerably between countries. In general, poorer countries spend less on health than better-off countries.

Within countries, health expenditure by poorer individuals and households (= private spending) is also less than that of richer ones. In most poor and medium income countries private spending largely exceeds public spending on health care⁴⁸. This is even true for countries where care is officially provided for free (e.g. Malawi)⁴⁹.

⁴⁸ Public spending = state and publicly controlled expenditure, e.g. mandatory social health insurance.

⁴⁹ Malawi MoH (2001) Malawi National Health Accounts (NHA) Financial Year 1998/1999 – A Broader Perspective of the Malawian Health Sector, Lilongwe.

What Type of Health Care Do People Spend Money on?

In most cases, there is a wide range of service providers available outside the public health care services: traditional healers, private practitioners, clinics, hospitals and pharmacies, public health care workers providing private services, drug-peddlers, quacks, etc. Self-medication, either using traditional or modern methods, is widespread.

Depending on the country and region, it is estimated that between 5 and 15% of the population are unable to *afford modern health care*. However, permanent inability to pay for health care must be distinguished from transitional inability to pay (e.g. because of seasonal income from sale of crops), and from delayed treatment. In the latter case cash for treatment in case of illness is not readily available, and assets must be sold or money has to be borrowed before treatment can be sought.

These local realities must be considered when designing a financing scheme. Appropriate solutions are best identified when the local community and local leaders are involved in the process.

The preference for different modes of payment varies depending on the type and amount of household income. It seems that the poorer people are the more they are reluctant to adhere to payment schemes incorporating elements of solidarity (e.g. lump-sum payment per episode, prepayment schemes, or health insurance premiums). Poor people tend to take greater risks. Thus, appropriate and accurate information must be supplied, if people are to be convinced of the advantages of solidarity-based schemes. Modes of payment must be adapted to the local situation. For instance, prepayment schemes must consider times when cash is available. Participation, a convincing benefits package, transparent management and accountability of managers, as well as good quality services will largely determine a scheme's success.

4. Financing

Diverse Functions of Health Care Financing and Health Accounts

Financing health care involves several functions based on two crucial questions: who is the original source of finance and who is

Table 6: Sources of finance and allocation mechanisms (adapted from Saltman, 1995)

Sources of Finance	Allocation Mechanism	Provision of Services
■ General tax revenues	■ Budgets & salaries	■ Personal health care services
■ Social insurance premiums	■ Contracts	– Hospitals,
■ Private insurance premiums	■ Reimbursement	physicians
■ Self-pay (user fees, direct payment of providers)	■ Direct payment (decision by users)	– Home care
		– Special services
		■ Public Health Services

it that ultimately spends (allocates) financial resources in order to buy services)? Thus, the function of the financier (who provides financial resources) needs to be separated from that of the purchaser (who allocates resources and buys services). The former function could, for instance, take the form of taxes or the income of private households. The latter could be assumed, for instance, by the Ministry of Health, District Health Authorities or health insurance agencies allocating budgets or funds to providers, or by private households paying directly for services. Moreover, the function of the purchaser has to be separated from that of the service provider, and there are various options for remunerating providers. Lastly, the function of steering the whole system (“stewardship”, regulation, control, etc.) is a distinct one.

It is quite feasible for these functions to be carried out by one single entity (e. g. a state health authority) or by different entities. These entities may be private or public, for profit, or not for profit. For instance, an individual may pay a premium to an insurance company; the company pools premiums from many members and buys – on behalf of the insured – services from particular hospitals and doctors using particular remuneration formulas. The table below shows the basic components of financing (district) health care and their instruments.

So-called “health accounts” which can be established at the national as well as at the district level show the different sources of financing, the flow of resources, and how/where the money is spent. The table below gives an example of various financing sources and financial flows in Malawi.

Table 7: Health financing sources and financial flows, Malawi, 1998/99
 (in million Kwacha (MK) ; 1 million MK = approx. 22,000 USD); MoF = Ministry of Finance,
 MoLG = Ministry of Local Government, MoHP = Ministry of Health and Population,
 MASM = Medical Aid Society of Malawi – health insurance)

Source Agent	MoF	MoLG	Donors	Employer	Private Households	Total	%
MoF	76					76	1.5%
MoHP	813		505			1,318	26.9%
MoLG	5	125				130	2.7%
Other Ministries	214					214	4.4%
Donors			955			955	19.5%
MASM Company				58		58	1.2%
Other firms				869		869	17.8%
Households					1,274	1,274	26.0%
Total	1,108	125	1,460	927	1,274		
%	22,6%	2,5%	29,8%	18,9%	26,0%		

In the following paragraphs, we will look at the sources of finance and at some forms (but not all) of allocating finance to the provision of services.

Sources of Financing

Sources of health care financing are, ultimately, public or private households. Basically, there are 3 options to tap these sources: 1) tax revenues, 2) self-paying and direct payments by users (fees), and 3) different forms of health insurance (premiums in the case of private insurance, or contributions in the case of social health insurance).

In sub-Saharan health districts the main sources of financing are general taxes channelled through the central state budget. Local taxes, direct payments by users, insurance contributions and premiums, and donations play a much less important role. External development aid remains, in many cases, an important source of

Table 8: Overview of the most important approaches for generating financial resources in health districts

Public Sources	Private Sources
<ul style="list-style-type: none"> ■ General taxes ■ Earmarked taxes ■ Deficit financing (borrowing) ■ Social health insurance Lotteries, betting ■ External development aid (tax-financed donors, dev. banks) 	<ul style="list-style-type: none"> ■ Community-based finance and self-help groups ■ Direct payments, fees (user, household, family) Private insuranceEmployer based systems ■ Charity, NGOs, donations

finance and may account for approximately 20% (or more) of total expenditure on health⁵⁰ in African countries. However, patterns of finance may differ quite considerably from one district, or country, to another. As mentioned above it is important to remember that many poor countries heavily rely on private financing of health care, particularly through individuals and families. Moreover, in many poor countries the share of private financing sources is still on the rise.

The establishment of district health accounts is a valuable tool to highlight the importance of the different sources of finance, to clarify the flow of funds within the district and to demonstrate “who gets what”.

Public Budgets

State revenues stem from various fiscal revenues (value added tax – VAT, income tax, custom revenues, etc.). In contrast to a frequently made assertion, financing health care through taxes is not necessarily more equitable than other forms of finance. It depends on the level of fairness of the relevant tax system. In a *progressive* tax system richer people contribute relatively more of their income to the state revenue than poorer people. This applies when State revenues are mainly generated through direct taxation, such as income tax, and taxation rates for higher incomes are higher than those for

⁵⁰ According to P.Shaw and C. Griffin (1995) Financing health care in sub-Saharan Africa through user fees and insurance, World Bank, Washington.

low incomes. In many low-income countries, however, the main source of state revenue is indirect taxes, such as VAT. Where this is the case, all citizens pay the same rate of taxation (for items of daily life, fuel, food, etc.), and consequently, poorer layers of society pay relatively more of their income to the state than richer people. Such a taxation system is called *regressive*. As a result, a health financing system based on a regressive taxation system can be considered as socially unjust. For instance, low income groups may indirectly 'subsidise' the hospital stay of high-income groups, since the latter pay lower tax rates than the former. Both groups, however, make equal use of public hospitals.

A health financing system based on taxation is relatively easy and inexpensive to administer, and has the potential to promote equity. It is easier to fund preventive measures and health promotion (such as child immunisation, family planning, life skills education, anti-smoking campaigns, anti-vector campaigns, road and occupational safety) through public budgets than through private finance.

However, there are many problems with financing health care through public budgets:

- "Free" health care funded through taxes has been and still is a myth, because of "parallel", under-the-table payments and other direct costs borne by the patients. Users of health services have no direct control over these budgets.
- Tax revenue does not tend to be very stable, or, as is the case in sub-Saharan African countries, it has even decreased. Social budgets are often the first targets of budget cuts when a country is plunged into a social and economic crisis. State contributions alone are not generally adequate to finance the health system.
- Management of central budgets is rarely transparent; embezzlement and corruption are, unfortunately, widespread. Bad managers are rarely held to account. Moreover, politicians also show little accountability. With quasi-direct access to tax funds via Parliament they have been known to allocate funds earmarked for the health sector to other, non-related sectors.
- Within the national budgets, the allocation of funds to the districts, particularly of remote and disadvantaged areas, is often insufficient. The main beneficiaries of the state budget are mostly hospitals that are responsible for assuring sophisticated tertiary level care. The losers are the primary health care facilities.

- In many countries the same applies to the district level: resources earmarked for health care can be siphoned off easily to other sectors if the reforms leading to decentralisation do not include strict rules and regulations.

Types and structure of user fees

- Fees may be levied
 - per inpatient day
 - per procedure
 - per episode of illness
 - per consultation
 - per disease category
 - for drugs & supplies
- Structure
 - **Fees** may **reflect the actual cost of services/supplies**: this makes cost coverage of services possible, but can be complex and costly to administer. Patients are kept unaware of costs prior to diagnosis and treatment.
 - **Fixed fee for all treatments**, or for all those with a certain diagnosis: this approach allows charges to reflect the relative costs of treatments. It is simpler to administer and makes cross-subsidisation possible. Patients will know costs prior to diagnosis and treatment (the supplier does not).
 - **Fixed fee per episode of illness**: this approach is similar to the former one. It also encourages continuation of care, is relatively simple to administer and makes cross-subsidisation possible.

Direct Payments (User Fees)

User fees⁵¹ are direct payments, officially imposed by public providers on the user, for health care services or other items received. They do not include unofficial payments or payments for private services. Over the last two decades, direct user payments have been advocated as at least a partial solution to current underfunding.

However, the introduction of user fees creates a variety of (perverse) economic incentives for the service providers, but also for (potential) users of services:

⁵¹ Often, direct payments by users are called user charges, or – somehow incorrectly, and hiding their true character, “cost recovery”, “cost-sharing” and even “community financing”.

Supply-side (Services)

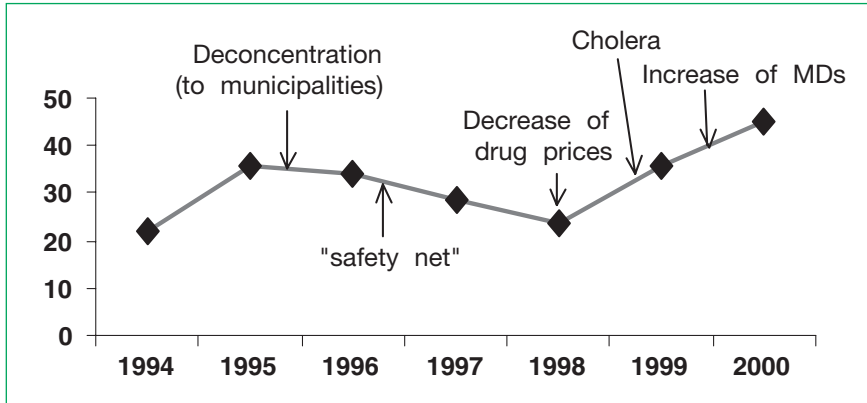
- User charges can lead to over-supply of services or prescriptions (supplier-induced demand) if the provider depends on this kind of revenue.
- If the focus is on revenue generation, services have little incentive to implement exemptions. At the same time there is little incentive to collect fees unless the revenue is used to fund improvements at the service level (i.e. in the hospital where the fees are collected).
- Administration costs may be high relative to revenue if the population in the catchment area of services is poor (and fee levels have to be kept low).

Demand-side (Users)

- Fees may induce a reduction in demand for health care services, as a result of problems with affordability and financial accessibility. This is particularly true for vulnerable groups and the poorest layers of society, and may suggest that user fees are unsuited to basic service packages, while being better suited to the provision of non-essential drugs and hospital services.
- Users may not seek health care for health problems perceived as unimportant, causing delays in seeking treatment, or non-continuation of care which may ultimately result in more expensive treatment or exacerbated health status.
- Lastly, users who pay may tend to overuse services and benefits linked to them (so-called patient “moral hazard”).

It is becoming increasingly clear that attempts to recover any significant proportion of costs through user fees have not been successful at national level, and utilisation of services has often decreased. For instance, in Africa, national cost-recovery levels have been kept at an average of 5% or less, due to a combination of relatively low fees, low ability to pay, high formal or informal exemption rates – often benefiting the non-poor whilst leaving the poor to pay the bill – inefficiencies and embezzlement. Equity improvements have not been achieved by any of the large-scale user fee schemes. There are well-documented accounts of large and sustained drops in attendance at health facilities. Moreover, there is some evidence that the important health needs of certain groups, for instance the poorest of the poor, and those with communicable

Figurer 1: User rates, curative outpatient care, Mahajanga



diseases, etc., are not being met because of limited access to care caused by the introduction of, or increase in, fees. Hence, some countries have recently started to abolish user fees in first-line services (e. g. Kenya). Graph 2 shows the influence of various factors on curative user rates in Madagascar.

Nevertheless, the introduction of user fees may also have some beneficial effects (efficiency and service utilisation gains). Hence, a differentiated examination of the effects of user fees is required, and the objectives of user fees need to be understood at country, district and even facility-specific level. It is recommended not only to thoroughly observe the impact of user fees on the average utilisation of services by the total population (e. g. user rate), but also to use stratification methods to differentiate between the effects on different age groups, sex, income groups, rural/urban population and different morbidity groups (see box).

Moreover, the impact of user fees on *financial sustainability* (revenue generation), *equity* and *efficiency* has to be monitored. In contrast to the very low cost-recovery rates at the national level, it has occasionally been possible to cover a considerable share of recurrent costs through user fees at the health centre level despite the fact that user fees require additional *administration* which has its own cost implications (charging, exemption, accounting).

Inter-regional inequity is often exacerbated if fees are retained at service level. A review of user fee schemes in sub-Saharan Africa

Examples of the impact of user fees

■ Different age groups

Ghana saw the greatest fall in the group of people over 45 (their share in overall utilisation fell from 27% to 17%). Utilisation was highest in the group of economically active people aged between 15 and 45 (share up from 27% to 42%). The under 5s had only a small decline.

Kenya (with exemption policy): an increase was found amongst people aged under 15 (from 30% to 43%). Utilisation dropped from 62% to 49% amongst people aged between 16 and 44. Utilisation in the group of people aged over 45 remained constant.

Zaire/Burkina Faso observed a fall in the under 5s group.

■ Rural/urban groups

There is general consensus that the deterring effect of user charges may be more significant for the rural poor than for urban groups. This is due to the relationship between income levels, cash availability and high non-price costs (travel).

Ghana: urban utilisation went down by 50% after 1 year, recovering to almost 100% after 4 years. Rural utilisation, by contrast, never recovered from the 50% decline registered in the first year.

Niger/Cameroon: utilisation by the rural poor, women and children increased. The increased use was found to be due to improved quality of care (increased 'relative affordability' of drugs).

■ Different morbidity groups

Swaziland: a decline in utilisation was observed for STDs, respiratory infections, diarrhoeal diseases and infant immunisations, while treatment for backaches increased.

Kenya: little change in morbidity patterns or illness severity. However, use of MCH services decreased by 30% over 1 year.

There is widespread fear that those at greatest risk of ill-health are most deterred by user fees, and that there is a fall in the utilisation of preventive care.

showed that patients at greatest health risk and with the greatest health needs leave the system first.

Unnecessary use of free services is unlikely in rural areas with a subsistence economy and high indirect costs. The richer and healthier layers of communities are more likely to use services unnecessarily.

However, it is accepted that fees can promote more *efficient use of the referral system* (introduction of bypass fees).

There is no evidence of a positive relationship between fee structures and the utilisation of preventive services, for example, or between the revenue received by Government and the successful targeting of the poor with preventive care, and other services.

Certain *preconditions* must be met if positive effects of user fees are to be achieved.

- Fees should be retained at facility level, but possible effects on inter-regional inequity have to be monitored and counteracted as appropriate (introduction of equalisation funds to balance structural inequities)
- Revenue should be used for quality improvements (increase of relative affordability of services); indirect costs should be reduced (travel, time)
- Coordinated price structures, effective exemption mechanisms and differential pricing should be implemented
- Effective management skills and procedures, accountability and community involvement have to be assured
- Management and budgetary responsibility should be decentralised.

Generally, user fees are now widely accepted as instruments for the reform of health financing policy. Without other accompanying reforms, however, “the imposition of charges on the users of government facilities is unlikely to yield substantial progress toward the goal of equity, efficiency, and consumer satisfaction” (Kutzin, 1995). By way of conclusion, quality improvements, decentralisation and management capacity, a package combining different financing strategies, accountability, responsiveness to client needs, community support, simple-to-administer payment schedules and exemption mechanisms, and a good balance between revenue generation and equity effects are of critical importance for the successful implementation of user fees. Delays and the partial completion of courses need to be avoided. One final argument in favor of user fees is that, as fees become an accepted fact of life, people will be more receptive to the idea of health insurance (Shaw and Griffin, 1995).

Prepayment Schemes

In prepayment schemes, users pay a fixed sum at regular intervals, which entitles them to receive a range of services during a certain period. This means that payments for specific items of health care are anticipated, and that the amount paid is debited every time the health services are used. In some models, the period of validity is limited and users must pay again for each time interval (e.g. three months or one year). Prepayment schemes are most attractive in environments in which cash availability is seasonal, as is the case in rural areas after the harvest. However, this kind of health financing mechanism is not widespread, and in principle does not lead to users sharing the financial risks of getting sick (i.e. sharing the costs of expensive treatments).

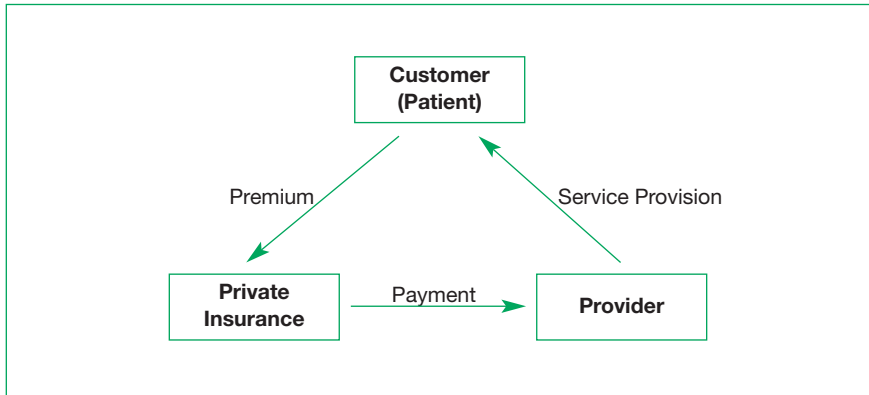
Traditionally, all African countries have some kind of “savings accounts for health” (tontines, etc.) which allow individuals to save regularly and also to use the amount saved for covering health expenditures. However, an individual may only withdraw what he or she has paid in, and catastrophic health care expenditures may thus not be covered. The value of such systems for modern health care systems is not clear. On the one hand, it is interesting to combine traditional and modern systems. On the other hand, there is a risk that the functioning of these traditional systems may be jeopardised by integrating them into the administration of public services.

Health Insurance

In view of the various problems with user fee systems, especially the exclusion of patients who cannot afford services, health insurance systems are becoming an interesting option. People are risk-averse: they prefer to pay small regular payments in return for the guarantee of coverage for large expenses, should these occur (e.g. “catastrophic” illness). Health insurance tries to pool payments from many people in order to raise additional revenue to fund the expenses of health care, and thus to diminish the financial risk of illness and to increase access to health care services. Insurers⁵² (the agency, or carrier, that manages the risk pool) must cover their

⁵² Health insurance arrangements are also called third-party payments (first party: the patient, second party: the provider, third party: the insurer)

Figure 2: 'Third-party payment' (health insurance)



administrative costs and keep a reserve to deal with unexpected expenses incurred by their clients/members (or must be members of a reinsurance scheme). The probability that the insurance will incur costs that are higher than average costs declines as the number of people enrolled increases. Some administrative costs may decline with larger pools, too. The result will be that the premiums or contributions to be paid by the clients or members will decrease as the number of the people enrolled in the scheme increases.

Social health insurance schemes charge compulsory contributions based on a person's income (solidarity) while voluntary *private insurance schemes* typically charge according to the health risk that a client represents. Private and/or voluntary insurance schemes - but also, to some extent, compulsory social insurance - expose a number of problems:

- Adverse selection (i.e. only people with high health risks adhere to the scheme) may jeopardise the financial viability of the scheme.
- Moral hazard (i.e. more frequent use of services by members than necessary, may increase costs of the scheme by wasting resources).
- Supplier-induced demand (i.e. an increased number of services delivered by providers, if reimbursed on a fee-for-service basis) also risks raising costs.

In principles two methods exist for setting premiums or contributions in voluntary schemes (private for-profit, or not-for-profit, schemes).

Community rating: This means that all the costs of the scheme are divided by the number of people enrolled. The contribution is the same for all members of the “community” of the insured. Formula: $\text{benefits} + \text{administrative costs} + \text{reserve} + \text{surplus} / \text{no. of insured}$.

Since individuals may withhold information about their health status from the insurance (information asymmetry), this rating method may lead to adverse risk selection. People with lower health status (and thus greater health risk) are more likely to enrol than healthier individuals.

Risk or experience rating means that for the people enrolled, individual premiums will be calculated. This can be done using different methods:

- Modified community rating (different premiums per age group)
- Tiered rating (premiums related to individual health status)
- Premiums related to other risk factors, e.g. occupation.

Risk or experience rating reduces the problem of adverse risk selection, but may exclude persons with a high need for health services, because they may not be able to afford high insurance premiums.

Social Health Insurance

After independence, most sub-Saharan African countries introduced mandatory social insurance for officially employed workers and employees. Since contributions to compulsory schemes can be set in proportion to an individual’s income – i.e. in relation to his/her ability to pay – and because insurers can provide services on the basis of need rather than on individual wants (as is the case in private, voluntary insurance), the problem of adverse selection does not exist. While social health insurance did not work very well in many countries for several reasons – not least because it is difficult to cover workers in the informal sector – a number of initiatives aiming to relaunch such schemes are underway (e.g. in Kenya and Ghana) because of:

- the need for additional funding
- a desired increase in protection for the population

- earmarked funding for social health insurance is not subject to political decisions
- a purchaser-provider split is introduced (contractual relationship, power balance)
- providers can receive better remuneration (motivation)
- the level of direct control exerted by the Ministry of Health/local health departments is reduced.

However, the introduction of social health insurance requires a number of conditions to be met, including:

- the existence of a formal labour sector: salaries and wages,
- a functioning fiscal system to establish the appropriate level of contributions,
- the ability of the State to act as efficient regulator and supervisor,
- an adequate legal framework that is updated regularly,
- state institutions which ensure that a (possibly) privately administered system pursues shared social goals,
- decentralisation and democratic control.

Private Health Insurance

As shown above, risk-rated premiums in private health insurance schemes tend to be higher for people at high risk, and may therefore limit access to these schemes for either financial or health reasons. Primarily, private for-profit health insurance seems to be suitable for supplementary services, such as cover for special accommodation costs in hospitals, or to shorten queues. However, it may lead to inflated expectations on the part of clients and to an increase in the cost of services. Strong regulation is required in relation to consumer protection, financial management and market entrance and exit of companies. However, these regulations should also apply to public and NGO schemes. One option may be to explore the possibility of using private agencies to deliver publicly financed insurance.

Voluntary Community Insurance

There has recently been growing interest in this form of health insurance all over the world, particularly in rural areas (as a complementary financing system). Common features of many schemes are:

- Services are covered that would otherwise have to be paid by the users,
- Services are easy for patients to evaluate and of high value (e.g. drugs),
- Insurance member cards are sold at a fixed premium/flat rate (community rating),
- Money is mostly retained by local providers,
- Services are provided by local providers (first level of care); sometimes secondary/tertiary care providers are included in the insurance package,
- However, revenue of schemes rarely covers full cost of services.

Experience shows that it is difficult, and sometimes impossible, to find the right balance between encouraging enrolment and bankrupting the scheme. Benefits should be limited yet attractive and clear to all. Local schemes work better than nationally developed ones, but replication is difficult. However, in local schemes the management capability may be low. The schemes must be 'sold', which is not easy for tax collectors. Rules must be set to prevent people from joining only once they are ill (e.g. one-month pre-registration, one year for pregnancy). Revenue in some cases may be marginal, which raises the question of whether the schemes should be subsidised (by whom?).

In some countries, (e.g. Community Health Funds in Uganda, Kenya, Tanzania) it has been estimated that more than 60 % of the population has to take part to cover the costs of the system. To date, however, the results achieved are well below this level⁵³. Obviously, major problems include the non-transparent utilisation of accumulated funds, and the failure to improve the quality of care.

GTZ has published a good overview of experiences with so-called mutual health organisations in West Africa⁵⁴

⁵³ In Tanzania, experience in some districts has demonstrated that in spite of a high level of subsidies from an external organisation (World Bank), the rate of participation remained under 30%, and was often no higher than 6–15%.

⁵⁴ Huber, G., Hohmann, J., Reinhard, K. 2003. Mutual Health Organization (MHO) – Five Years Experience in West Africa. Concerns, Controversies and Proposed Solutions. Eschborn: GTZ.

External assistance

In numerous African countries, external assistance accounts for between 20 and 50% of total health spending (e.g. Malawi 29%, Tanzania 51%). Up to now, external assistance has targeted investment expenditure and capacity-building activities in particular. However, in recent years donors have increasingly been inclined to finance recurrent expenditures. Most large-scale vertical programmes, such as EPI, TB, HIV/AIDS, FP, are funded almost entirely by international donors. Nonetheless, economic forecasts make it appear inevitable that this assistance will have to continue in the long term, albeit probably at a lower level.

In recent years, international donors have adopted new strategic approaches such as pooled funding (“basket”)⁵⁵ and budget support⁵⁶ often imbedded in sector-wide approaches (SWAp). The comprehensive SWAp aims to coordinate all donors on the basis of one national health development plan. These more coordinated methods of funding can be considered when sufficiently favourable conditions (good financial management, allocative efficiency, transparency, audits and accountability) exist.

5. Provider Payment Arrangements

The mode of payment used to pay providers can create powerful incentives affecting the behaviour of health care service providers. It may induce movement toward or away from improved efficiency, equity and consumer satisfaction. Provider payment mechanisms are confined to public and third-party payment of providers (e.g. insurance companies), but do not cover direct payments from patients to providers.

There is no single optimal provider payment mechanism. A prerequisite for the functioning of these payment arrangements is the existence of some form of decentralisation, some degree of

⁵⁵ Pooled funding applies to jointly agreed programmes, where donors transfer funds directly or via the MoF to the ministries involved, e.g. in the health sector against mutually agreed activities and milestones.

⁵⁶ Budget support is the direct transfer of financial contributions by donors to the Ministry of Finance to subsidise the government budget or the Ministry of Health (earmarked for health purposes), but without any other directives on the part of the donor.



Pricing and sale of drugs require a transparent system (Tanzania)

autonomy of the various actors and skilled management. Mixed forms of provider payment seem to be preferable to reliance on any single method.

There are two general types of payment options:

1. prospective payments, such as budgets: payments are made or committed before services have been rendered,
2. retrospective reimbursement, such as fee-for-service and case-based payment: payments are made after services are provided.

Prospective Payment

Line-item Budgeting

This is the option typically used by governments and an important part of most centrally directed health systems and district health systems. Public managers are prohibited by budgetary rules from switching funds across line items (categories such as salaries, equipment, transport, etc.) and they have little direct responsibility for performance. The predominant intention of line-item budgeting

is to control spending; however, substantial losses in efficiency are usually observed. The existence of unspent funds at the end of the year, for instance, is usually interpreted as an indicator of excessive allocation, not as efficient use of funds. Thus, line managers have an incentive to spend their funds rapidly, without regard to efficiency. Providers are usually remunerated on a salary basis with low levels of bonuses, and productivity is low. Nonetheless, lack of management capacity in many countries or districts may be a good reason for line-item budgeting.

Global Budgets

These are aggregate payments fixed in advance to cover expenditure in a given period where considerable discretion over the use of the allocated funds is given to the institutions – for instance hospitals, or special hospital services. Budget managers are free to re-allocate expenditure across line items as needed for efficient management. However, the budget, once fixed, is usually difficult to amend over the budget period. Reforms using global budgets (e.g. autonomous district hospitals) intend to increase managers' flexibility while holding them accountable for efficient performance. Managers should have control over personnel, need good cost information, and should be free from unnecessary regulatory burdens. *Formal contracts* (the so-called *contractual approach* within district health systems) can be used to fix objectives, levels of provider performance and quality standards. This implies that efficiency, equity or output measures (e.g. coverage rates) can be used as criteria for budget setting provided the necessary information is available. Global budgets can also be based on population size and distribution, expected case mix and utilisation of services, or alternatively, on the economic power of a district or sub-district.

Incentives: In the short run, i.e. one budget period, global budgeting is suited to control costs and increase efficiency. In the long run, however, adjusted budgets must reflect service load and thus be based either implicitly or explicitly on units of service, number of cases, or capitation (see below).

Administrative costs tend to be low for global budgeting in comparison with other forms of provider payment, but depend to a large degree on the complexity of the allocation formula. Unfortunately, the least costly allocation formulas create cost-escalation incentives (e.g. unnecessary increase in the number of beds).

Conditions associated with performance success and failure: Public sector workers may oppose global budgeting since it is often accompanied by greater facility-level control over personnel (“hire and fire”). Other possible impediments are poorly developed management capacity in the district, and difficulties with assuring quality control. Firm and transparent administrative procedures are needed to review and adjust budgets. However, global budgeting may be a useful interim step leading from traditional line-item budgeting to the adoption of capitation or case-based reimbursement (see below).

Capitation

Under capitation schemes, providers are paid a periodic fixed amount per person to finance a defined package of services. Capitated providers bear the “(financial) risk” for these services and are, in this sense, insurers. Health funding authorities can predict and control costs of health services more easily. Capitation can be used to define global budgets.

Incentives. Capitation motivates providers to reduce costs and, thus increase efficiency. However, it may also encourage providers to select low-risk clients, or to limit the quantity and quality of services provided.

Administrative costs. Administrative demands on fund holders are considerable (monitoring of provider practices, negotiating contracts, setting capitation rates, running risk equalisation schemes, etc.). However, they are potentially lower than those of retrospective reimbursement because there are no claims to be processed.

Conditions associated with performance success and failure. Skilled management is critical for successful performance under capitation. It should be introduced cautiously in countries with limited management capacity, possibly on a pilot basis.

Retrospective Reimbursement

Fee-for-service

Fee-for-service is the most common *retrospective* payment method, both in developed and developing countries.

Incentives. Free and unregulated fee-for-service reimbursement promotes excessive use of services. This is because patients rely on providers for information on their need for services, and providers

have a strong financial incentive to increase the volume of services (“supplier-induced demand”). Keeping fee levels under control does not seem to be sufficient to prevent escalating expenditure. Quite to the contrary, fee-for-service reimbursement has even been associated with the use of unnecessary and potentially harmful services⁵⁷.

Administrative costs are high. Detailed record keeping, billing, auditing, etc. requires rather sophisticated information structures and systems.

Conditions associated with performance success and failure. Fee-for-service reimbursement increases the productivity of health systems but leads to rapid cost escalation. Cost-sharing alone is not likely to counteract fully increases in volume induced by providers.

Case-based Reimbursement

Under case-based reimbursement, providers are paid a predetermined amount covering all services per (distinct) case or episode of illness. This gives providers a strong incentive to produce health services more efficiently. The complexity of case-based systems of reimbursement varies greatly with the number of case categories. The simplest case classification may be an inpatient admission or a day of inpatient treatment. Some schemes have only 16 inpatient categories (in Bwamanda, 1989, Zaire) whereas others are more complex with more than 600 categories (diagnostic-related groups, Germany, 2002).

Incentives: Case-based reimbursement gives strong incentives to *contain costs per case*. However, providers may be encouraged to attract and accept patients at the low-cost end of the case-based reimbursement category. Private providers may be induced to ‘dump’ difficult cases on public facilities. There is also some concern about the effects on quality of care because of the cost-reduction incentives offered to providers.

Administrative costs of a complex system of case-based reimbursement are high since it demands extensive management information systems and record keeping. Setting and adjusting reimbursement rates may prove difficult.

⁵⁷ Brazil had the highest Caesarean section rate with 31% of hospital birth deliveries in 1981; one important cause was the financial incentive to physicians.

**HOSPITALI YA WILAYA HANDENI
UCHANGIAJI HUDUMA ZA AFYA**

AINA YA DAWA	BEI	MENGINEYO
1. DAWA ZA KANJIA: Kama: ASFRIN PADALI DAWA ENEODOJINI TABLA POFIINI wa KWA DOZI MOJA	100.00	
2. ANTIBIOTICS -ZA KANJIA: Kama: AMOXICILLIN CAPS CHU, OLANHEMEDI, CAPS TERITHOMIEN, PEN Y, KWA DOZI MOJA	500.00	
3. SINDANO: (a) ANTI-BIOTIC KWA MASAA ZA (ISHIRINI NA NINE)	500.00	GENAMTEIN INJI SH 300 KWA KICHUFA
(b) ANTI-BIOTIC KICHUFA KIMOJA	250.00	
(c) MAJI YA KUCHANGANYA DAWA	100.00	
(d) SINDANO MINGINEZO: KILA MOJA - Kama: DIAZERAM na OLUNINE INJI MOJA KICHUFA KIDOGO	150.00	
4. DAWA NTIWIWIZO ZA: NI TAREFI YA FANSIDAF, QUENINI TAB, TAGAMET, DICLOFENAC INDOCID na KWA DOZI MOJA	500.00, 300.00	
5. FOP: MOJA	600.00	
SIANDA MOJA	100.00	
DISIP MOJA 1 LI	250.00	
DRIP MOJA 1 LI	500.00	
I.V. SET MOJA	400.00	
SCALD SET MOJA	300.00	
SYRINGE MOJA	100.00	
CHUFA YA DAMU MOJA TUPU	1000.00	
HEJIDA WA DAMU	300.00	
6. CREAMS/PESSARIES/ OINT MOJA na DAWA ZA MACHO MOJA	500.00, 200.00	
7. SYRUP ZA WATOTO KILA CHUFA	500.00	
8. UPASUJAJI MDOGO	1000.00	
9. UPASUJAJI MKUBWA	1000.00	

KARIBUNI

**NB: HAKIKISHA UNAPATA RISITI YAKO KABLA YA
KUONDOKA**

UTAWALA

An exemplary blackboard displaying drug prices for the public (Tanzania)

Conditions associated with performance success and failure. Case categories have to be well designed to prevent adverse incentives. Usually, there is a need for sophisticated management information, accounting and auditing systems, and high electronic data transfer capacity. These may be beyond the capacity of most countries.

Mixed Systems

Most provider payment systems are mixed for practical reasons and to counter some of the adverse incentives. Different payment schemes can be used for different categories of providers (e.g. capitation reimbursement for primary care doctors and case-based reimbursement for hospitals). There may be mixed payments for any given provider (global budget targets combined with actual payments on a fee-for-service basis). Payment methods may vary depending on the type of services provided (capitation for a basic service package, elective services covered by fee-for-service). However, the choice of the mix is crucial to balance the different effects produced by the different payment mechanisms.

6. Financial Management

The District as a Financing Unit

In an effectively decentralised health system, the district has an opportunity to develop its own financing system, provided the funds allocated by the Ministry of Finance are transferred to the districts through one channel only, which should be the Ministry of Local Government rather than taking the circuitous route through the Ministry of Health.

It is easier for the district management to raise additional funds in the district because it is more familiar with the different sources available in the shape of private enterprise (potential sponsors), the population or external sources. Comprehensive planning, which includes all sources of funding, is very effective here.

The fact that those responsible for health services are closer to reality in the district (rather than being far removed at central level) should ensure a more rapid and concrete response to problems. The greater proximity to actors at district level also makes it easier to ensure transparent management and thus more accurate utilisation of available funds.

This should allow the establishment of an independent financing system at district level characterised by greater efficiency.

There is great scope for rationalising health services which would reduce dependence on external sources. Frequently, however, rationalisation tools are not applied appropriately because of a lack of ideas or because of political resistance.

Table 9: Example of comprehensive planning based on all available sources of funding in Handeni district (392,000 inhabitants) in Tanzania.

Handeni District			
Comprehensive Council Health Plan (2003/2004 in USD)			
Annual Budget		Annual Per Capita Spending on Health	
Block grant (Central Govt)	412,000 (62.7 %)	Sources quoted above	approx.USD 1.7
		Additional spending by the population	USD 2.0
Council Fund	5,000 (0.8 %)	Total in Handeni district	USD 3.7
Basket Fund (Donors)	182,000 (27.7 %)		
GTZ	25,000 (3.8 %)	Health spending at central level	USD 1.7
World Vision	8,500 (1.3 %)	Total health spending (countrywide)	USD 5.4
GDS	2,000 (0.3 %)		
Cost sharing	11,500 (1.8 %)	Breakdown of Expenditures for Health	
		Govt/Community	63.5 %
		Population	3.5 %
		Donors	33.0 %
DRF	11,000 (1.7 %)		
Total	657,000 (100 %)		

Financial Management Instruments

Proper management of income and expenditures requires effective and simple tools that are used efficiently by the health personnel at every level of the district. These tools comprise a range of documents such as cash account books, registers, bank books, receipts and other forms as well as the budget (for further details see Chapter 2 ‘Planning and Management’, Chapter 3 – ‘Health Services at Primary Level’ and Chapter – 4 ‘The District Hospital’).

The concepts, regulations and guidelines to implement appropriate financial management procedures that ensure transparency, documentation of the flow of funds and clarity in their allocation have to be developed and updated in line with experiences made. To this purpose, adequate advisory support from central level or

Steps of proper budgeting (planning)

- Assessment of available resources
- Identification of the needs
- Setting of priorities, definition of objectives
- Development of an adapted programme
- Assessment of future costs
- Reconciliation of objectives and programme
- Decision on who will participate in developing the budget
- Setting of an agenda on budget development
- Approval of budget

through development aid may be necessary. Long-term assistance with and monitoring of reforms in the field of financing and financial management are necessary to guarantee transparency and the implementation of proper control mechanisms.

It is crucial to organise effective training of district and hospital administrators, health staff in smaller health facilities and also community representatives who will increasingly become involved in financial management issues due to decentralisation. It is up to the regional administration to ensure adequate training – preferably on the spot – of all district management teams in the region.

Budgeting

Budgeting is a crucial part of financial planning at district level since a clear financial framework for expenditures helps to ensure that planning in the district remains realistic with regard to the available resources. Budgeting means to estimate what the real costs of any planned activities are likely to be. Thus, by taking into account all revenues and expenditures, the budget lays down what may actually be achievable in the coming planning period, in general one year. The budget can also be described as the financial translation of the plan of action⁵⁸.

To obtain a full picture of the available financial sources in the district or the institution, and to ensure the transparency of the

⁵⁸ F. Stierle, M. Kaddar, E. Alihonou, B. Schmidt-Ehry (2000) Financing and Financial Management of the Health District in Sub-Saharan Africa

Table 10: Simplified budget for recurrent costs at district level

Cost centre →	DHMT	Hospital	HC	Dispensary	Communities	Programmes e.g. HIV/ AIDS	Source
Categories ↓							
Personnel							
Drugs							
Equipment							
Maintenance							
Transport							
Training							

financial framework all contributing institutions and individuals should be involved in the planning process, for example of the district health plan (see also Chapter 2 ‘Planning and Management’).

To distinguish between different types of actions the budget is usually divided into two subsections: a budget for recurrent costs and a budget for investments (also called budget for capital costs).

The recurrent budget specifies the maximum expenditure for each operational category (budget line) such as personnel, maintenance or transport and for the cost centres, i.e. the various operational institutions. The plan of operations specifies further details of the planned expenditures, such as the time frame. (See also Chapter 2 ‘Planning and Management’)

In general, it should not be possible to shift funds from one category to another. This applies in particular to funding earmarked for salaries, drugs and equipment. In practice, however, the allocation of funds is more complicated. Traditionally, salaries and drugs are paid at central level, but where the administration is gradually being decentralised, the district will increasingly be in charge. Where the management capacity in the districts remains weak, the budget can be a good instrument for controlling expenditure. Its execution can also provide a positive training opportunity for administrative staff.

As an element of the district health management system the budget is indispensable for the management of hospitals, whereas

for smaller facilities simple accounting booklets are considered adequate.

The monitoring of the *programme budget* (the budget plan) and the *effective budget* (the actual budget as implemented) can reveal a funding shortfall. The degree of discrepancy between the two is an indicator of the level of reliability of financial planning.

As mentioned above, the downside of budgeting is that it offers no incentives for rationalisation, i.e. for improving efficiency. Those responsible do their best to spend all funds allocated because any funds that have not been spent at the end of the period budgeted for are considered to reflect bad planning or excessive allocation of funds.

Financial Control

Since there is an ongoing concern about a lack of transparency of financial procedures at all levels, the instruments and methods of financial control in the district health system are of the utmost importance to enable close monitoring of revenues and expenditures and to achieve more transparency. In general, the minimum set of simple and effective instruments of financial management is well known (see also Chapters 2, 3 and 4), but their application frequently fails to yield the desired results.

For primary level services and for the district hospital, internal auditing is important. Professionals (administrators) in the same district should be in charge and report about the results to the respective committees dealing with health services management at district level.

The effective involvement of representatives of the community is also vital, especially if fees are charged for health care (for further details see Chapter 8 'Community Involvement in Health Care').

As decentralisation progresses it is increasingly important to consider external audits at district level (the administration of the district and the district health management team). These must be conducted by professionals employed by the central level or by specialised private enterprises.

In most countries regulations for both internal and external auditing are in place and according to official reports in use. However, in practice they have apparently lost much effectiveness. This may be due to some gaps or weaknesses in the operational proce-

dures that are recommended. Some of the regulations were introduced during the first years after independence. However, what seems to be much more relevant in terms of inadequate utilisation of control procedures is a lack of courage to pursue mistakes and abuses. There are many reports about negative consequences suffered for instance by district health officers from higher authorities as a result of having taken action against health professionals who were found to have misused funds or other resources in the district. In addition, there is much evidence that the problem of incorrect handling and misuse of resources includes moral and political aspects rather than merely technical ones. Accordingly, financial control is not only a technical challenge; it always has an educational and moral dimension for the whole of society.

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7. Drug Supply

by Meinolf Kuper and Emmanuel A. C. Gbaguidi

1. **Strategy, Concept and Legal Framework**
2. **Rational Prescribing**
3. **Organisation and Administration**
4. **Pricing**
5. **Private Sector Promotion**



Model pharmacy in a district hospital (Benin)

1. Strategy, Concept and Legal Framework

An essential drugs strategy aims to promote the rational use of essential generic drugs in place of the large number of superfluous commercially branded products sold at vastly inflated prices at present within the district health system.

We employ the term *rational use* to mean the judicious use of drugs on the basis of a sound system of drugs management to avoid shortages and wastage, ensuring that drugs are used correctly by patients. *Rational use* implies that prescription decisions for all necessary drugs are based exclusively on the lowest cost option where this is no less effective than more expensive alternatives. This not only reduces costs for the health system and for the patient, but prevents patients from taking drugs with potentially harmful side-effects that are not essential.

The essential drugs strategy is not limited to distributing good quality products at low cost, and using generic drugs wherever possible. It comprises the following measures that must be implemented if the strategy is to have the intended impact:

- production of a separate list of drugs for each level of treatment
- organisation and administration of the supply and distribution cycle on the basis of the genuine needs of the population of the catchment area, and on the basis of the major prevalent health problems; adequate funding of the management system (e.g. by using a revolving fund)
- drugstore management and provision of drugs to the various health facilities
- establishment and monitoring of flow process charts (standardised diagnosis and treatment procedures)
- training and further training
- awareness and information work with the local population
- support for the private sector.

The essential drugs strategy competes with the independent provision of branded pharmaceutical products which generate profits for the pharmaceutical industry, wholesalers and private pharmacies; hence this strategy can be expected to face considerable resistance.

It is extremely important for the authorities to take a clear line and adopt pertinent legislation to establish the framework for the

essential drugs strategy by regulating modes of supply and distribution of drugs at national level, specifying which branded products and generics are approved for use, etc. The implementation and application of this legislation within the framework of a national pharmaceutical policy can be taken as indicators to gauge whether or not the government effectively supports the strategy.

Essential drugs

are drugs of proven efficacy which are considered indispensable, and which together make up a stock of drugs with which all conditions can be treated (with the exception of particularly rare conditions).

Generic drugs

are products bearing the official name of the drugs rather than the name of any manufacturer or seller. This is generally the international non-proprietary name (e.g. ampicillin): while the commercial name of a product is selected by the manufacturer, the generic name is decided on by the WHO.

The district health management team should exert influence on the relevant ministry to have the essential drugs strategy incorporated into the national pharmaceutical policy. This can be achieved by using direct contacts with civil servants and politicians, setting out the arguments in favour of such a strategy based on regulations that have proved effective in other countries, and providing concrete suggestions for their implementation.

2. Rational Prescribing

Rational prescribing is based on standardised procedures for diagnosis and treatment (D + T), which should reflect the specific health problems in each country, and must be followed by prescribing physicians. These procedures are developed primarily to provide sound guidance on prescribing for medical staff working in the health facilities. To guarantee that procedures are accepted and used in practice, a major training effort will be required as will ongoing monitoring (supervision).

Several countries have introduced their own procedures for diagnosis and treatment at the level of the district health system. The

Table 1: Extract from Cameroon's D + T Manual (2003)

1. Look at	condition	well, alert	*restless, irritable	*lethargic or uncon-
	eyes	normal	sunken	scious
	tears	present	absent	very sunken, dry
	mouth/ tongue	moist	dry	absent
	thirst	not thirsty	*thirsty, drinks eagerly	very dry *drinks poorly or not able to drink
2. Feel	skin pinch	goes back quickly	*goes back slowly	*goes back very slowly
3. Decide		no signs of dehydration	If patient has 2 or more signs including at least 1* sign: moderate dehydration	If patient has 2 or more signs including at least 1* sign: severe dehydration
4. Treat		Plan A (page T3–2)	Plan B (page T3–4)	Plan C IV re- hydration (page T3–6)

* = Key signs

“diagnosis and treatment” principle generally applies to all these procedures:

a. *from the symptoms to diagnosis and treatment:*

The prescribing physician first identifies the main symptoms ranking them according to their medical importance. The various steps in diagnosis and treatment are then explained in detail.

b. *pathological observations and treatment:*

Treatment uses essential drugs; under certain circumstances recourse to traditional medicine might be appropriate.

It should be noted that it may not be possible to make a final diagnosis in cases where action is needed without delay, e.g. meningitis, obstetric emergencies, etc. The IMCI concept of the WHO provides an example of this approach, which focuses on the severity of the condition rather than on the exact diagnosis.⁵⁹

⁵⁹ IMCI = Integrated Management of Childhood Illnesses, a programme launched by the WHO in 1995 to fight the most frequent childhood diseases particularly in services at primary level.

Rational drug prescription for patients in need

As a rule of thumb the drugs prescribed should be differentiated from a medical perspective according to:

- essential now
- maybe later (when money is available)
- not necessary.

Example: Diagnosis: bacterial bronchitis

Prescription:

Antibiotics	– essential now!
Cough syrup	– maybe later
Vitamin B complex	– not necessary

In Cameroon, a model D + T manual has been drawn up, corrected and revised on the basis of actual experience; the manual is currently being introduced at national level.

If used correctly, D + T procedures offer four major advantages:

- Drugs are used rationally, i.e. only as many products as absolutely necessary and only in the quantities required; generic drugs are prescribed, preventing the multiple and often needless prescription of several drugs on one prescription, which in turn cuts costs for patients.
- Should serious medical conditions be identified (e.g. meningitis, ectopic pregnancy), the diagnosis is made swiftly and the patient can be referred and transferred rapidly to the appropriate facility.
- Records kept by the district health facilities on the basis of D + T procedures provide excellent information on differentiated symptomatology. By evaluating this information a realistic picture can be gained of the epidemiological situation in the areas served by a health centre.
- D + T procedures provide useful pedagogical back-up within the framework of in-service training and supervisory visits.

To ensure that patients do not discontinue treatment prematurely, it is usually advisable to supply them with the total quantity of prescribed drugs (larger quantities in chronic conditions). This is vital to guarantee the success of treatment and prevent drug resis-

Table 2: Rational Prescribing of Essential Drugs – Indicators

Indicators	Comments	Examples
Number of drugs per prescription	Multiple prescribing should be minimised. Often only 1 or 2 drugs are needed to treat a patient effectively.	3.2 (Benin, 1992) 2.3 (Mali, 1992) 3.0 (Guinea, 1992)
Sales price formula for drugs (cost price plus x)	To cover costs (transport, storage, etc.) a sum must be added to the cost price. This is expressed as percentage or factor of the cost price.	Cameroon (2003): cost price x 1.564 or cost price +56% (calculation in two stages: national store → provincial store 38%, provincial store → districts 17%) Guinea (2003): cost price x 1.34 or cost price + 34%
Average costs per case (in USD)	The total cost of one case includes all drugs and other materials (dressings, etc.); depending on the purchasing power of the population (demand).	Between EUR 1.50 and 5.00

tance developing, even if some patients cannot afford the total quantity of drugs.

Studies of the average costs of drug therapy and of the number of drugs prescribed per case give us valuable information on the practices of prescribing physicians and on possible options for rationalising practices through training and better supervision.

3. Organisation and Administration

List of Drugs

The WHO's list of essential drugs, which embraces all necessary drugs in the health sector, is currently the basis on which each country can draw up its own list. The current WHO list (in 2003)

Table 3: Essential Drugs and Consumables in Cameroon (2003)

DRUGS ALLOCATED TO HEALTH CENTRES

N°	ARTICLES/FORME	N°	ARTICLES/FORME
1	ACETYL SALICYLATE DE LYSINE 1800 mg	50	GLUCONATE OU FUMARATE DE FER 200mg/ml sirop 125 ml
2	ACETYL SALICYLATE DE LYSINE 900 mg	51	HUILE DE PARAFINE 125 ml
3	ACIDE FOLIQUE 5 mg Comp.	52	HYDROXYDE D'ALUMINIUM 500mg Comp.
4	ALBENDAZOLE 400mg Comp.	53	IBUPROFENE 400mg comprimé
5	ALCOOL A 70° Flacon/125 ml	54	INDOMETACINE 25mg Comp.
6	AMINOPHYLLINE 100mg Comp.	55	LAME DE BISTOURI N° 23
7	AMINOPHYLLINE 250mg/10ml Amp	56	LIDOCAINE Hcl 2% 50ml
8	AMOXICILLINE 125 mg sirop	57	MEBENDAZOLE 100mg Comp.
9	AMOXICILLINE 250 mg sirop	58	MEBENDAZOLE SIROP 100ml
10	AMOXICILLINE 500mg gélule	59	METOCLOPRAMIDE 10mg /2mlAmp.
11	AMPICILLINE INJ 0,5 g	60	METOCLOPRAMIDE 10mg Comp.
12	AMPICILLINE INJ. 1g	61	METRONIDAZOLE 125mg sirop
13	ANTITUSSIF SIROP 125 ml (DIPHENHYDRAMINE)	62	METRONIDAZOLE 250mg Comp.
14	ASPIRINE 500 mg Comp	63	MICONAZOLE 2% CREME
15	BACITRACINE+NEOMYCINE POMMADE	64	MULTIVITAMINE COMP
16	BANDE DE CREPE 4mX10cm	65	NYSTATINE 500.000 U I Comp.
17	BANDE DE GAZE 4m x 10cm BANDE PLATREE 2,7mx10cm 2 pièces	66	NYSTATINE 100.000 U I Crème
18	BENZATHINE PENICILLINE 1.2 M.U.I	67	NYSTATINE 100.000 U I Comp. Gyneco.
19	BENZATHINE PENICILLINE 2,4 M.U.I	68	PARACETAMOL SIROP 120mg/5ml
20	BENZYL BENZOATE 125ml	69	PARACETAMOL 500MG Comp.
21	BIPENICILLINE 1 M.U I OU PROCAINE BENZYL PENICILLINE	70	PENICILLINE G 1M UI
22	CATHETER IV N° 16	71	PENICILLINE V 250 MG Comp.
23	CATHETER IV N° 18	72	PENICILLINE V 500MG COMP.
24	CATHETER IV N° 20	73	PERFUSEUR
25	CHLOROQUINE 100mg Comp	74	PHENOBARBITAL 50MG COMP
26	CHLORPHENIRAMINE 4mg Comp	75	PHLOROGLUCINOL 80MG Comp.
27	CO-TRIMOXAZOLE 240mg Sirop	76	PHLOROGLUCINOL 40MG Amp.
28	CO-TRIMOXAZOLE 480mg Comp	77	P.V.P IODINE 10%
		78	QUININE 200mg Comp.

N°	ARTICLES/FORME	N°	ARTICLES/FORME
29	COMPRESSES STERILISEES	79	QUININE 300mg Comp.
30	COTON HYDROPHILE 50G	80	QUININE 600mg/2ml Amp.
31	COTON HYDROPHILE 500G	81	QUININE RESORCINE 200mg/2ml Amp.
32	CLOXACILLINE 250mg gélules	82	QUININE RESORCINE 400mg/4ml Amp.
33	DEXAMETHASONE 5Mg/ml Amp	83	RINGER LACTATE 500 ml
34	DEXTROSE 5% 250 MI	84	SALE NORMAL 0,9% 500ml
35	DEXTROSE 5% 500 MI	85	SALICYLATE DE METHYL SOLUTION 125 ml
36	DIAZEPAM 10 mg Amp	86	SERINGUE/AIGUILLE 2ml
37	DIAZEPAM 5 mg Comp	87	SERINGUE/AIGUILLE 5ml
38	DOXYCYCLINE 100 Mg Comp	88	SERINGUE/AIGUILLE 10ml
39	EAU Pour préparation Inj. 5 ml	89	SONDE DE FOLEY N° 16, 18, 20
40	EAU Pour préparation Inj. 10 ml	90	SPARADRAP 5mx2cm
41	ENVELOPPES	91	SPARADRAP PERFORE 5mX18cm
42	EPICRANIENS 23 G	92	S.R.O SACHET
43	EPICRANIENS 25 G	93	Sulfadoxine 500mg+ PYRIMETHAMINE 25MG Comp.
44	ERGOMETRINE 0,5 MG/ML Amp	94	SULFATE DE FER 200mg Comp.
45	ERYTHROMYCINE 250 MG Comp.	95	SULFATE DE FER 200 mg + ACIDE FOLIQUE 0,25mg
46	FUROSEMIDE 20 mg ampoules	96	TRETRACYCLINE 1% PDE. OPHTALMIQUE
47	GANTS STERILES T: 7 _ ou 8	97	THERMOMETRE
48	GENTAMYCINE COLLYRE		
49	GLUCONATE DE CALCIUM 10%Amp.		

comprises a total of 306 products. The complete list is certainly sufficient for the needs of regional or district hospitals, but for health centres, dispensaries, etc. it is much too extensive, and must be adjusted to reflect the range of care and health services actually provided. Tables 3 and 4 give an example of a list of essential drugs adapted for a primary level health centre and for a typical district hospital in Cameroon.

The Ministry of Health should draw up a special list for every level of care. This list is in line with the terms of reference of the health facilities (e.g. health centres) and specifies which drugs may be used. (See also examples in Tables 3 and 4.)

CONTRACEPTIVES		WOUNDS AND SUTURES	
98	CONDOMS (Unité)	105	CATGUT NORMAL 0, 1, 2/0
99	DEPO-PROVERA Amp.	106	CATGUT CHROME 0, 2, 2/0
100	DIU	107	NYLON 0, 1, 2/0
101	LO-FEMENAL Comp. (cycle) ou DUO	108	SOIE 0, 1, 2/0
102	NORPLANT (Unité)	109	VICRYL 0, 1
103	OVRETTE Comp. (Cycle)		
104	SPERMICIDE Comp.		<u>ANTITUBERCULEUX</u>
			ETHAMBUTOL 400mg Comp.
		110	ISONIAZIDE 100mg + RIFAMPICINE 150mg Comp
		111	PYRAZINAMIDE 500mg Comp.
		112	STREPTOMYCINE 1g
		113	
SUPPLEMENTARY DRUGS FOR DISTRICT HOSPITALS			
1	ATROPINE 1MG Inj.	10	OCYTOCINE 10 U.I inj.
2	CHLORAMPHENICOL 250 Mg Comp.	11	PHENOBARBITAL 200mg Amp.
3	DIGOXINE 0,25mg comp.	12	SALBUTAMOL 0,5 MG INJ.
4	FUROSEMIDE 40mg Comp.	13	SALBUTAMOL Comp. 2 MG
5	GENTAMYCINE 80 Mg Inj	14	SERINGUE à insuline 1ml + aiguille
6	GLIBENCLAMIDE 5mg Comp.	15	SUPPOSITOIRES ANTIHÉMORROÏDAIRE
7	GRISEOFULVINE 500 Mg Comp.	16	VITAMINE B COMPLEXE INJ. 2 ml
8	KETAMINE 50 Mg/MI Inj.	17	VITAMINE B Complexe (B1-B6-B12) Comp.
9	METHYL DOPA 250 Mg Comp.		

Drug Deliveries

The district health management team must ensure that drugs needed by the hospital and health centres are delivered in time. In general, governments set up central public or semi-public pharmacies to organise drugs supplies. Economic and organisational factors, however, frequently prevent these from doing their job satisfactorily. This is why, among the health sector reforms, the reform

of the pharmaceutical supply system must be a top priority. Experience in several countries indicates that it is technically possible to reorganise the system provided the political will exists. Either:

- the central pharmacy can be transformed into a “central purchasing body”, managed in a transparent manner and controlled by public authorities (e.g. as seen in Benin, Togo, Burkina Faso, etc.), or
- the central pharmacy can be decentralised, and regional stores set up and managed at that level; these are closer to the districts they serve and easier to co-manage (e.g. Guinea Conakry and Tanzania), or
- the status of regional pharmacies can be modified (giving them the status of a public-benefit organisation, such as a cooperative or an association (e.g. the Provincial Special Fund for Health in Cameroon))

Until such time as the supply of essential drugs is effectively regulated at national level the district must have recourse to all viable means of procuring the drugs it needs. To this purpose, the districts should work with both private wholesalers and health organisations run by religious groups. Care should be taken to ensure that the various manufacturers and wholesale suppliers respect the elementary rules of quality control for drugs.

In countries where a large percentage of health facilities are run by churches, separate religious purchasing bureaus exist (e.g. Rwanda and the Democratic Republic of the Congo) or the option of setting up such a bureau is being discussed (e.g. Tanzania).

Hybrid models also exist, somewhere between state-organised and church-organised supplies, such as the Central Medical Store (CMS) in Malawi, where the Church plays an active part in managing the central store. One peculiarity of church-run central stores tends to be a great diversity of product sources. Often drugs are donated to the churches, and these donations are handled frequently at very modest all-inclusive costs.

In Benin, a central pharmacy was remodelled as a purchasing office, and is now managed in a transparent fashion by members, mostly from the private sector. So far it has managed to ensure an uninterrupted supply of essential drugs. The purchasing office is at the disposal of all health facilities in the country, but the latter are free to order drugs from other source. The finances of the institu-

Provincial Special Fund for Health (Cameroon 2003)

- The Provincial Special Fund for Health was first run as a three-year pilot project in two provinces. It was then established over a ten-year period throughout all provinces of Cameroon, with associated private structures and is today a successful example of this form of reorganisation.
- The fund is registered as an association of communities representing state and non-governmental health facilities.
- It aims to supply members with essential drugs and to redistribute any surplus generated in a socially acceptable fashion.
- The remarkable success of this fund resides in its ability to provide drugs to the districts at an affordable price, adhering to quality standards and ensuring the availability of the products in all health facilities.
- Sales prices are the same everywhere, be it in the north of the country or in the capital. This social equity is underpinned by a cross-subsidy system.
- Community participation in the management of the fund up to provincial level is the secret of the success of this model.

tion and the degree to which its services are used show a markedly *positive trend*.

Stock Management

A system of stock lists must be introduced in pharmacies attached to the health services. This system, which documents all goods received, goods delivered and sales, as well as giving information on expiry dates and purchase prices, must be easy to use to facilitate checks of current stock levels and the monthly consumption of each drug. A comparison with the hospital's monthly statistics allows for turnover checks at any given time within the framework of supervisory activities. An up-to-date information system on the management of drugs in district health facilities demands daily records to be kept of pharmaceutical operations.

In most countries the district hospital's pharmacy is responsible for supplying all of the district's health facilities (e.g. in Tanzania, Malawi, Guinea-Conakry, Benin and Togo).

To avoid any breakdown in the supply of drugs, the resupply system must take into account the times required for dispatching the drugs. Strategies and systems for organising the drugs cycle (estimating needs, ordering, storing, issuing, resupplying) have been introduced in many countries, and are well regulated. The timing of deliveries is determined by the lead-time or the reorder level entered on the stock lists, which takes into account the time that will elapse before the drugs are actually delivered to the operational level.

Red alert

To avoid interruptions to the provision of essential drugs, a system must be put in place that works like a red alert:

- Introduce a system to document stock based on stock lists which indicate when a new order must be placed (reorder level)
- Take into account the rainy seasons, when it can be more difficult to deliver drugs.
- Ensure that enough funds are available, so that supplies are not interrupted because of a lack of cash.

In pharmacies, at both district and community level, stocks of individual drugs must be recorded on appropriate forms, as must all goods received and goods issued.

Orders (or copies thereof) kept by the pharmacy and recorded for hospital statistics can be used for monitoring purposes.

To store drugs at district level it is vital to have a sufficiently large storeroom and the necessary equipment (including cooling equipment). The store can be managed by public, public-benefit or private organisations.

It should also be noted that some countries or districts have only an interim store. Where this is the case, the drugs ordered are pre-packaged by the supplier for each district health facility. The district receives the supplies and forwards them to the health centres. This presupposes precise needs planning at the level of every individual health facility.



Propharmacy – a private regional drug support system (Cameroon)

Distribution and Additional Deliveries

Basically, every health facility is responsible for the delivery of the supplies it requires. All local transport capacities must be used. The health facilities can always make use of supervisory visits or monthly meetings in the main town of the district to have drugs delivered. Supplies should be delivered at regular intervals (monthly or quarterly); it is also important to ensure that urgently needed drugs can be obtained rapidly between two regular deliveries.

Official lists specify which drugs are available. Orders must be based on the concrete needs of the catchment area. To ensure that the supply chain is not interrupted for unforeseen reasons, it is vital to take into account the incidence of the most common conditions, the projected rate of utilisation of the services offered and the possible outbreaks of epidemics. You must always allow for buffer stocks.

The advantages offered by the delivery of pre-packaged drugs as practised in several Anglophone countries (e.g. the kit system that is in operation in Tanzania) are clear, provided the central pharmacy is run efficiently: the health facilities regularly receive a standard quantity which is intended to cover the basic needs over a pre-determined period (e.g. one month).

However, there are drawbacks to this system: if the contents of the kit diverge from changing needs it can take too long to modify the kits with a resultant breakdown in the supply of some drugs, while surpluses of other rarely used drugs accumulate.

Taking all these factors into account, it is important for the drug-store at district level to have sufficient buffer stocks to bridge temporary supply gaps.

Controls

In practically every country the essential drugs supply system has to contend with illegal and dubious practices, such as:

- incorrect handling of prescriptions by pharmacy staff
- illicit sale of pharmaceutical products with the emergence of parallel circuits
- sales by personnel of products that do not belong to the pharmacy
- the intentional disregard of management and control tools (receipts, stock lists, etc.)

- artificial or provoked breakdowns in supplies (delaying orders, poor estimate of needs, etc.).

Financial control should, as a rule, be the responsibility of the executive level of the health service (e.g. the Director of the Health Centre or the District Medical Officer) and by an authorised representative of the community. In the course of decentralisation, the district health management committee (or another relevant organisation) should play a key part in the pharmaceutical and financial management of the health facility.

The following instruments are needed for financial control:

- cash book
- bank statements
- pharmacy sheets and forms
- copies of receipts for drugs sold to patients.

4. Pricing

The principle of covering costs must be taken as the basis for pricing drugs. All the operating costs incurred (transport, storage, local staff, administrative costs, contingencies, quality control, losses through expiry, taxes and other levies, etc.) must be added to the purchase price. The operating costs are expressed as a percentage of the purchase price, e.g. in 1999 in Mali the average sales price

Drugs – Free of charge or at a price?

The political intention of supplying drugs free of charge is laudable from a social point of view, but it entails a multitude of potential problems.

Where drugs (and consultations) are available free of charge, health facilities are consulted significantly more often than would normally be necessary, because patients tend to visit the facilities in order to accumulate drugs (which they then store at home). As a result, the total quantity of drugs is frequently exhausted long before the end of the month. And everyone complains that deliveries are inadequate!

The introduction of a system of payment for drugs (or indeed for all services) can help resolve this problem.



Street pedlar selling traditional drugs (Tanzania)

was 167% of the purchase price (purchase price = 100% + cost of resupply 67%).

This type of pricing on the basis of real prices has the advantage of transparency, and is thus the model best accepted by patients. To even out the cost of medication the costs of particularly expensive drugs (such as Praziquantel) should be offset against the costs of very cheap ones (e.g. eye ointment).

This approach can also be used to promote certain products (e.g. oral rehydration salt, condoms, etc.) whose sales price should not be much higher than the purchase price. Cross-subsidisation of this sort helps keep the average price level affordable for patients.

Exceptional rules for destitute patients must be developed in close cooperation with the local communities.

General subsidies for essential drugs require high-level political decisions⁶⁰.

The system of setting a lump-sum price for all drugs prescribed for the patient for any one condition or risk period takes the principle of solidarity one step further, but can meet considerable resistance from those not in a risk situation, especially in very poor areas.

By adding an extra charge to the cost price, a surplus can be generated on the sale of drugs. These revenues can then be used to finance other activities or acquisitions, which must be approved by representatives of the local community (since it might be argued that the extra charge is to the disadvantage of the patient).⁶¹

However, this method harbours some major risks: lack of transparency, complicated accountancy, and insecurity generated among patients, etc.

For all these reasons it would appear more expedient to organise the financing of drugs supplies separately from other operating costs (perhaps on the basis of a revolving fund). This makes it possible to set prices at the best level for both sides, which is not insignificant given the considerable resistance to an essential drugs strategy based on generic drugs.

Experience to date indicates that treatment of patients using essential drugs and rational treatment procedures can cut costs by around 75% in comparison to traditional prescribing practices.

⁶⁰ One type of social subvention of drugs practiced in some countries is termed 'franchising'.

⁶¹ Practised by the Special Fund pharmacies in Cameroon.

5. Private Sector Promotion

After twenty years of negative experiences with centralised public or parastatal drugs supply structures, numerous African countries have found themselves faced with the necessity of developing alternative structures (in particular public-benefit structures) while resorting increasingly to the private sector to guarantee drugs supplies. As a result the concept of privatisation has been embraced increasingly at the political level.

To date there has been a more or less unregulated co-existence of public and private pharmacies with numbers varying enormously from one country to another, and from urban to rural areas within any one country depending on the purchasing capacity of the population and on the regulation of private trade in medicines.

In the interests of guaranteeing drugs supplies at acceptable prices in the long term, all conceivable structures must be analysed to determine what contribution they could make before they are subsequently mobilised accordingly. This strategy targets pharmacies in particular, but also kiosks, markets, traders, bars, etc.

Specific enquiries and negotiations must be conducted to clarify to what extent these structures are willing and able to play a part in ensuring adequate drugs supplies in the region (social marketing studies).

It is possible to come to an arrangement with private pharmacies and to agree with them on regulations for the distribution of essential generic drugs and the prices that can be charged for these. It is in fact desirable for private pharmacies to support the essential drugs policy even if it might first appear to contradict their own commercial interests. As a *quid pro quo* for their support of this policy they must be permitted to sell brand-name drugs that are not on the essential drugs list to district hospitals. Wherever possible, they must also be involved in pertinent planning.

Other private-sector business people (kiosks, merchants) should equally be involved in these studies and the associated planning work. In some countries they form a vital distribution network; they have the trust of their clients, sell drugs and traditionally provide advice in this field. Rather than trying to cut them out of drugs sales, it is preferable to determine how they can be integrated, for example through specific information and upgrading measures that

allow them to make an effective contribution to the controlled drugs supply system.

The scope for private businesses setting up and surviving in rural areas with very low purchasing power does, however, remain limited.

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8. Community Involvement in Health Care

By Thomas Kirsch-Woik and Cornelius Oepen

1. **Basic Considerations**
2. **Effective Co-determination**
3. **Health-related Community Activities**
4. **Participation in Health Financing**
5. **Assumptions for Community Participation**



Meeting of a community development committee (Tanzania)

1. Basic Considerations

It is vital for the target population to be involved in shaping health services in line with the primary health care concept of the World Health Organization (Alma-Ata, 1978) to ensure

- that the health services are familiar with the health problems of the target population and their living conditions,
- that these services are tailored to local conditions and to the resources available, and
- that they are accepted by users.

This observation is based on years of negative experience with centrally managed public services. Community involvement firstly implies collaboration on the design of (professional) health services, and secondly community-run, health-related activities, in which the health services may also be involved. A large percentage of treatments and preventive measures can be carried out by the families of patients or by the local community. For committed communities it is important to generate concrete, lasting benefits for their members, e.g. a source of safe water closer to the community which will make life easier for community members. It is also important that community members realise which decisions taken in cooperation with local community representatives have led to which positive outcome (“ownership” is the term used most to describe this situation)⁶².

The involvement of communities and self-help organisations in health care can enhance communication and understanding between the population and the health service staff, and can create an equal relationship based on partnership among all stakeholders, thus boosting acceptance by the local population of the health activities carried out. Involving the local population in health activities and in the management of health centres can strengthen the community’s sense of responsibility for their health service (empowerment). The community can no longer adopt a passive attitude (“the main thing is that enough drugs are available...”), but

⁶² “Ownership” in this context means the authority to take decisions about money and power. Money also in the sense of advantages accruing from water points; power such as the tangible influence over decisions: The representative of the local community sits over a cold beer and thinks, “Hey that decision – that was ME”.

must accept its share of responsibility for appropriate infrastructure, equipment and staffing of their health centre.

The creation of rules governing participation in the health service includes demands to ensure accountability of the mostly state-employed health staff, thus encouraging discipline and responsibility on the part of the staff, and raising the quality of services, e.g. non-discrimination on the basis of social status and prohibition of secondary employment. Another important point in motivating staff is revenue management by the local community provided this is possible under the national system. Local communities should be granted a certain amount of leeway to decide how these funds should be used. Gradually, and in the long term⁶³ the administration of health services can be taken over by health associations within the scope of decentralisation.

2. Effective Co-determination

Principal Rules

Both the substance and the forms of co-determination in designing health services must be agreed with representatives of the local population. Agreements must, of course, comply with relevant legal provisions.

The scope of co-determination is a major indicator for the effective implementation of the strategy to decentralise authority and decision-making powers in the health sector. While this makes it an extremely important legal and political instrument, its introduction is frequently accompanied by more or less concealed political conflicts so that intensive consultancy and facilitation become as essential as technical expertise.

Transparency is a fundamental principle of co-determination: all administrative procedures, particularly cash flows where cost-sharing mechanisms are in place, must be regulated in a way that makes them easy to follow and check. All fees and major regulations must be made public, e.g. in the form of easily visible boards at the entrance to the building.

⁶³ The experience of the GTZ in Togo indicates that four years of parallel promotion and support are needed (Institutional Training and Networking Section).

The most suitable forms of co-determination can vary enormously from one place to another, and relevant (action research) studies should be conducted if necessary to determine what is most appropriate in a given setting. Experience in many countries indicates that two problems in particular can cause difficulties:

the willingness (and ability) of health service staff to accept co-determination in conjunction with the community;

the identification of representatives of the local community who are genuinely committed and who enjoy the trust of the target population⁶⁴.

Regulations at Local Level

The co-determination body, generally termed a “health committee”, and usually comprising representatives of the local community and health centres, needs statutes and a legal form that are officially agreed and recognised.

In several countries, these bodies have official statutes at various levels (village, community, district), e.g. in Rwanda, Benin, Cameroon, Tanzania. The composition of the bodies is, however, always controversial; it reflects the willingness of officials to permit genuine co-determination (bottom-up democracy). Care must be taken to ensure that the body is truly representative, so that the

Health service boards in Tanzania...

are new structures at district level to involve communities in priority-setting and taking responsibility for health.

They are composed of (elected) councillors and nominated members of the communities.

Their main responsibilities lie in the fields of financial and human resources. However, implementation is very slow and the benefits generated by these committees are not immediately obvious, since they use considerable funds for allowances and transport.

Human capacity-building at lower levels seems to be the most important pre-requisite for successful participation.

⁶⁴ The most important factor is often ensuring that expenses are reimbursed (including marginal costs, such as travel or opportunity costs).

entire population of the catchment area feels represented. This is particularly important for women, who are often a particularly disadvantaged group.

Elsewhere, members of the community have sometimes got together to set up user groups with the legal status of an association (e.g. Madagascar) or a foundation (Community Health Funds in Uganda, Kenya and Tanzania) which elect representatives to the co-determination body. These organisations decide on the health-related community activities that are to be supported and funded with the help of membership contributions.

Co-management in the health district: the contractual approach

Example from Togo

In Togo efforts are underway to bring together co-management bodies at district level as 'health associations'. This would make them a genuine partner for the DHMT in legal terms and would enable central government to gradually transfer authority for health posts and personnel to these bodies.

The contractual form of the relations between state (or private) health institutions, their staff and the representatives of the people, and/or the health association who come together to make up the co-determination body, is particularly important in this model.

Efforts focus on three stages:

1. A general policy is elaborated.
2. The necessary legal and legislative framework is created:
 - establishment at national level of a monitoring unit;
 - drafting of written authorisations for managers of health structures;
 - elaboration of a methodology guide for the contractual approach.
3. Implementation phase:
 - training for those responsible within the health administration;
 - support for the creation of monitoring committees at regional/district level for the contractual approach;
 - support for the contracting structures regarding the health administration;
 - evaluation one year after contracts are signed;
 - fine-tuning and adaptation of directives;
 - Ministerial decree with modified directives.

The expectations of these co-determination bodies are often very high⁶⁵. The following are the most frequently specified duties of these bodies:

- organising and planning health service activities;
- discussing and deciding on income and expenditure and on the inputs to be provided by the local population;
- discussing the quality of services; any bonus payments for health staff should be laid down or modified by this body; discussing any complaints about staff and discipline problems, and seeking solutions which can be proposed to the district health management team.

Unfortunately, however, it is fair to say that few of the existing bodies have the personnel capacity they need to perform all these tasks. Capacity-building measures are thus a top priority.

Co-determination at District Level

At district level too and in the hospitals, co-determination bodies, generally called administrative advisory councils, should be set up to ensure effective, co-administration. In reality, however, it is often difficult to introduce these, since the political and legal framework that would provide for them rarely exists. Only once district hospitals have been granted administrative autonomy in the course of health reforms, or once districts have been decentralised, does the option of introducing bodies of this kind exist. When drawing up the statutes for administrative advisory committees, care must be taken to involve all relevant groups and organisations within society (elected representatives of the people or mayors and/or town or community councils, health service staff, the management bodies of the district and the hospital, representatives of NGOs and the local community, etc.). A successful example of this approach is Bè Hospital in Lomé, Togo. (See Box on page 6.)

Supervision by the district health management team should also cover advisory services to the health committees. This can trigger conflicts of interests between state health service staff and repre-

⁶⁵ The impression is that external donor organisations in particular attach a great deal of importance to co-determination bodies, expecting their operations to be in line with Western concepts of democracy, which often, however, run counter to local cultural and political circumstances.

sentatives of the local community, especially in rigidly centralised health systems where executives have little scope for independent action and negotiation because they are bound by central directives to implement national health policy. A decentralised health system can open doors here and thus foster community involvement that is closer to the target group and more problem-driven.

In some countries, NGOs that have specialised in promoting and supporting self-help grassroots initiatives advise the health committees and the local communities. Funding usually comes from international donors. The representative composition and the empowerment of the co-determination body are important aspects of the organisational consultancy work of NGOs.

3. Health-related Community Activities

A whole series of important health-relevant measures that can be classed as both primary and secondary preventive measures or indeed as curative services can only be effective in the long term



Performance of 'development theatre' in a rural village (Tanzania)

Local drama, dance and music groups...

have a long tradition, especially in rural areas, where they are widespread. Frequently entertainment can be linked with topical issues.

In 1998, drama experts surveyed the villages in Tanga Region, Tanzania and found some 30 groups that were so talented that they were selected for special training in the techniques of development theatre.

Development theatre uses the on-stage presentation of topical problems, such as HIV/AIDS, to involve and challenge the audience to participate in a public discussion of the problem. This technique is taught, for instance at the College of Arts in Bagamoyo (Tanzania).

survey conducted

for political and relationship education of the College of Arts in Bagamoyo

if they are performed by the local community itself. The scope and success of these measures depend on the sociocultural context, the sociopolitical and personal commitment of community members and their leaders, and the support they receive from the political sector and from their health services.

Typical community-driven activities include:

- maintenance and repair work on water points, wells and drinking water taps;
- disposal of waste water and domestic solid waste;
- introduction and monitoring of general hygiene measures such as public toilets;
- antenatal care provided by community midwives;
- care of the destitute and of disadvantaged groups (including single mothers);
- taking care of the chronically sick (TB, AIDS, leprosy sufferers, etc.);
- education work using audiovisual materials, e.g. drama groups.

Some of these activities can be organised and funded as self-help job creation schemes, and can thus help reduce poverty (for instance when associations pay individuals to perform the above community work using community funds).

Other activities are possible in conjunction with health and social services (and offices of other sectors), and can be very expedient:

- targeted youth promotion (vocational training, AIDS and STD control, family planning);
- support for family planning services;
- financial support for community helpers (e.g. for preventive measures);
- support for targeted campaigns (e.g. to fight malaria, bilharzia, dracunculosis).

Community representatives have a special role to play within the scope of co-determination bodies or associations, in that they take care (in full or in part) of those who cannot afford services (see also Chapter E).

In the 1980s and 1990s – in response to the primary health care strategy – village health workers were given rudimentary training to allow them to run village health posts. The performance achieved by these village health workers unfortunately failed to live up to the initial expectations. Most health professionals lacked the necessary medical background, supervision did not work properly and the services became unsustainable. Because of the high costs of supervision, the expediency of appointing village health workers was increasingly called into question. The use of village health workers today seems appropriate only under certain circumstances. However, it has proved valuable to promote traditional birth attendants in many countries where this approach has been successful.

Community health workers may be useful if there is...

- poor geographical and/or cultural accessibility;
- demand and proven commitment on the part of the community (or village);
- remuneration by the community, independently of external sources, and secured in the long term;
- a clear role definition and appropriate division of responsibility;
- guaranteed supervision by health service staff.

Other potential sponsors of health-relevant community activities include committed individuals, schools, and church and NGO-supported initiatives.



Public taps and latrines

The construction of taps and latrines in the densely populated quarter of Bè in Lomé (Togo) and the management thereof by local associations proved a lucrative rehabilitation measure. A fee was charged for use of the toilet and for drinking water supplied to those in the population who did not have their own water connection. This was a major contribution to overcoming endemic diarrhoeal diseases, including cholera.

The moderate investment costs (construction, connection to the water network, management training) were, for the most part, borne by GTZ. The associations were responsible for maintaining the plants. The surplus revenue generated allowed them to invest in other measures (e.g. building drinking water taps or a community centre) and thus to create jobs.

However, cooperation with the water authority in terms of subsidised water prices and with private sector companies regarding the use of pumping trucks proved difficult.

(Photo: Lomé/Togo)

There are several ways for the health services to support community activities:

- suggest ideas to the health committees and advise them;
- run joint education and training events;
- provide ongoing consultancy during supervision.

4. Participation in Health Financing

Self-help Organisations

All cultures have some type of traditional savings organisations, which often have between 20 and 100 members. Their goal is generally to cover themselves for various risks or expenses, e.g. childbirth, marriage, sickness, death. But in some savings associations, members are allowed to spend a certain sum on whatever they like (e.g. the “tontines” in West Africa).

These self-help organisations can be important for health services since they provide members with financial access to treatment should they become acutely ill. Within the scope of introducing cost-sharing in health care, it is a good idea to study these

When participation doesn't work...

The Madagascan experience (2002)

Efforts to get the community to share in the costs and the administration of health care failed because:

- of the lack of time and commitment on the part of community members;
- but also because of the opportunity costs involved for active members, which were an obstacle to ensuring their commitment in the long term.

The arbitrary actions of the state, however, also led to frustration:

- Responsibility for co-managing health associations was suddenly changed without prior warning.
- The money gathered was used for purposes other than those planned.
- The national drugs and financing policy was changed.

The population was frustrated and withdrew. The health associations disbanded or stopped working after 3 to 5 years.

traditional savings organisations in terms of their performance capacity, the level of acceptance they enjoy and their transferability.

In urban areas at least, the private sector can represent another source of financing. Potential sponsors include multinational companies such as Shell or Total to fight AIDS, or charity groups (Lions Club, Rotary Club, Inner Wheel), which exist in most African cities⁶⁶.

Cost-sharing Mechanisms

In recent years many countries have introduced cost-sharing mechanisms within the framework of health reforms. Frequently the costs of drugs are shared (initiated under the terms of the Bamako Initiative)⁶⁷ while the community or a local users' group manages the village pharmacy at the health post.

See Chapter 6 "Costs and Financing" for more details on other cost-sharing models and their pros and cons. Here, we only aim to point out a few elementary facts that should be borne in mind when introducing cost-sharing in the health sector.

When fees are introduced, the community should be involved in the discussion of and decisions on fees and the use of revenue from the outset.

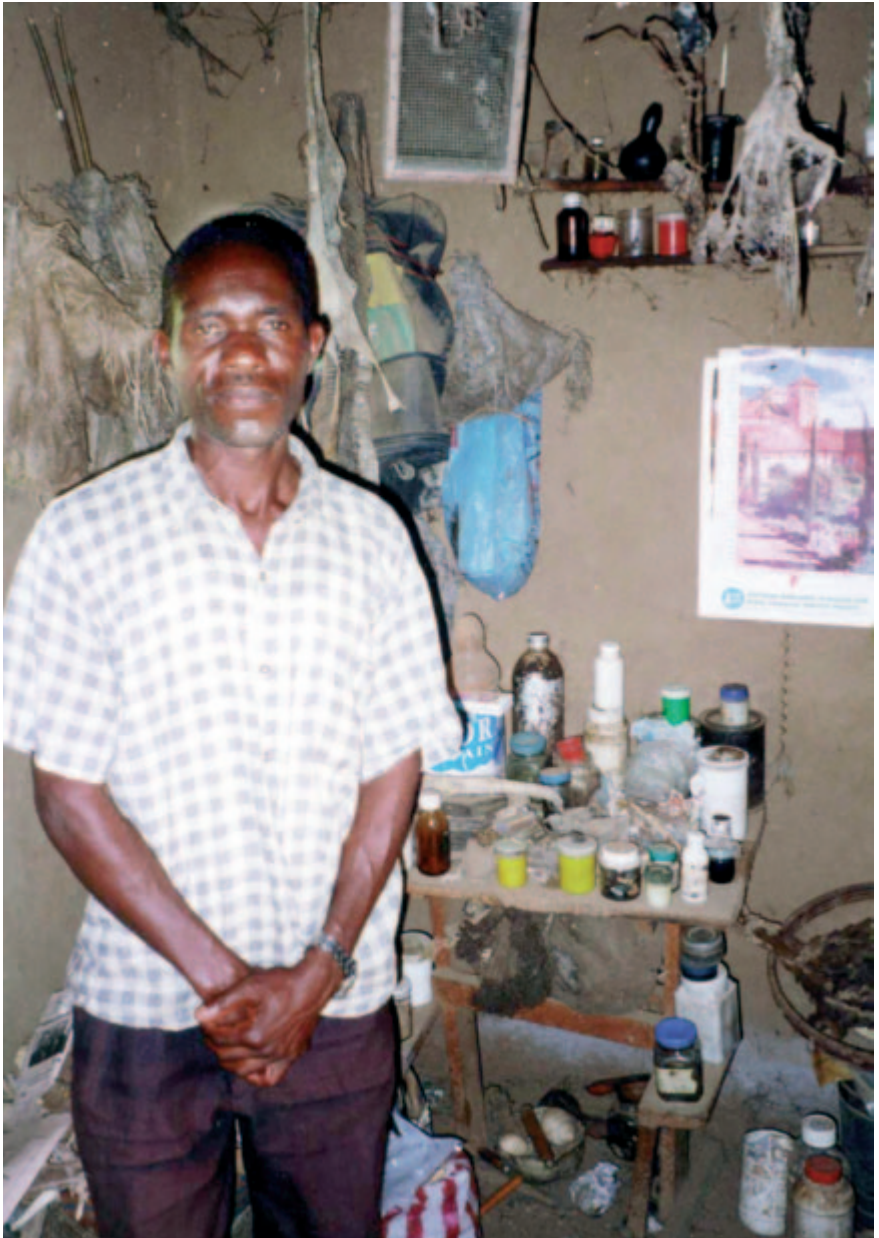
Revenue should be managed at local level as far as possible, and the use of funds should be decided on locally (at least partly), within a framework laid down by the district.

The rights and obligations of the local community and the health service staff should be laid down clearly in writing and accorded official approval.

However, experience shows that, as regards financing in particular, it is very difficult to enforce effective and lasting co-determi-

66 In Lomé, for instance, there are 4 Rotary Clubs, 5 Lions, 1 Inner Wheel, 2 Soroptimist and 1 Zonta, each with some 30 – 50 members from the affluent classes, especially business people. About one hundred years ago, the first action of the first Rotary Club was to finance a public latrine in Chicago. The Rotary Foundation doubles the inputs of local associations when they work with other associations, say from Europe or the USA on a tripartite basis.

67 The "Bamako Initiative" was founded in the Malian capital in 1987, and introduced in a number of states between then and 1990, in order to help put Africa's health services on a more stable financial footing by having the population share in the costs of drugs. To balance this, the Initiative provides for the population to be involved in the administration and utilisation of drugs revenues.



A traditional healer in his hut (Tanzania)

nation. The reasons for this can be found both on the government side and in the communities.

5. Assumptions for Community Participation

Community participation has always been seen as an extremely important factor in development in the wider sense, but it has rarely worked effectively. Efforts have rarely been made to uncover the true reasons for this, since it is a complex, difficult social phenomenon.

The human resources and institutional preconditions for operational co-determination vary enormously from one country to another. They range from countries with a strong, politically active NGO sector, which needs practically no external support and consultancy, to countries with very few self-help organisations and co-determination initiatives. Community participation and self-help organisations are limited here by the lack of capacity to implement the concept, both on the part of the communities and on the part of the health service staff. Frequently, investment in all stakeholders is needed in the form of training and back-up for the process of democratic participation. This is time-consuming and costly, and for these reasons has mostly failed in the past.

The concept of community participation goes far beyond the health sector since it involves “investment” in the general development potential of stakeholders, thus promoting the development of organisations, groups and individuals in general as well as in the political decision-making process. This process presupposes the political will of national decision-makers if it is to succeed. The resources needed are either not always available, or they are not considered a priority by decision-makers. External technical assistance should only be made available for a limited period, perhaps intermittently. The sustainability of the approach will depend on the political will of decision-makers and on establishing and utilising local expertise.

Another critical point in community participation is the danger of overstressing the reserves of the community in terms of time and resources. Governments and international development cooperation organisations now expect self-help or the involvement of the local population in practically all development-relevant sectors

(education, agriculture, infrastructure maintenance, e.g. roads, irrigation channels, etc.), in many cases going so far as to make it a precondition of cooperation. As a result stakeholders can find themselves with so many self-help tasks over and above their normal work that they can never hope to meet all their commitments. The concrete situation of the population must be studied carefully in each instance before making demands on the local community and stating expectations.

Experience has shown that governments, districts and international development cooperation organisations should only support approaches where the preconditions for sustainable implementation verifiably exist. At local level this implies above all the willingness of the community to play an active part, and the existence of competent individuals.

Furthermore, it is important to establish whether the appropriate framework conditions for the planned process of community participation are in place by examining the political feasibility as well as the need for legislative regulations and any necessary prior or parallel investments. This should include a preliminary socio-economic study, a clarification of the legal options for and limitations to community participation and the involvement of self-help organisations, as well as an evaluation of existing regulations.

Only once these framework conditions are met by the state, and resources are guaranteed for a long-term commitment, or once it is clear that the political will to release funds to this end exists, should efforts be launched to introduce co-determination structures. There is nothing worse for long-term development than a local population who have been instrumentalised or whose expectations have been disappointed, since the inevitable result is resignation and despondency.

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9. Technical Services and Maintenance

By Hans Halbwachs and Oberlin Kisanga

1. Relevance
2. The Concept
3. Maintenance System
4. Energy and Water Supply
5. Transport Management
6. Waste Disposal
7. Costs and Financing
8. Quality Management



Toolset in a hospital maintenance workshop (Tanzania)

1. Relevance

As far back as 1987, the WHO stated⁶⁸ that the condition of health care technology in most developing countries was such that urgent intervention was needed. In view of the tremendous value of infrastructure and equipment, it has become common to consider health care technology under development costs, a large percentage of which is usually borne by external sources. Needs assessments of technology usually result in the purchase of large quantities of new equipment and material. Where equipment breaks down, requests are lodged for a new device rather than having repairs performed by local technicians. Obviously, maintenance has no tradition in most African countries.

However, a few countries have made significant progress in promoting the development of a maintenance culture. As major health sector reforms in many countries aim to boost efficiency in the health sector, the usefulness of maintenance and appropriate technology is increasingly recognised. Some countries have established maintenance units within the MoH and are launching national maintenance programmes (e.g. Malawi, Cameroon, Burkina Faso and Guinea).

Regarding the terms used in documents and policy papers, *Healthcare Technology Management (HTM)* and *Physical Assets Management (PAM)* are used by the WHO and other relevant institutions in a more fundamental and strategic sense.

We will use PAM to describe relevant activities at national level. At district level we prefer the term *Technical Services and Maintenance* in order to stress the more operational aspects of this important issue.

2. The Concept

Objectives

Technical service and maintenance in the health sector is a support service which aims to ensure the continuous availability of

⁶⁸ See Global Action Plan on Management, Maintenance and Repair of Healthcare Equipment, WHO, 1987.

medical care-related equipment, energy supply, waste disposal, transport and general infrastructure.

Many countries fail to take technical service and maintenance into consideration in planning exercises. However, with the increasing scarcity of resources, and in line with ongoing reforms, maintenance in health care is gradually being recognised as an important factor in rationalising services.

Methodological Approach

Technical services and maintenance are not purely technical in nature. Rather, they are considered primarily as management functions, and must be seen as a support system which embraces all operational levels of the health care system. This means:

- consideration of technical services and maintenance in planning and reporting at all levels;
- involvement of all health professionals at all levels;
- coherence between primary and referral levels; costing and financial monitoring;
- supportive supervision;
- operational research.

At *national level*, the policy and concepts of PAM have to be developed, and operational guidelines for the technical services at

Physical Assets Management (PAM) in Malawi's health sector

PAM is a national programme that establishes systems and structures for the management and maintenance of physical assets at all levels of the health sector.

The planning and coordination unit is an integral part of the Ministry of Health. Planning and inventory software has been developed. Guidelines for maintenance workshops at district level are available. District maintenance systems receive technical assistance provided a qualified technician is available and if the management of the district shows interest in maintenance issues.

In 2002, 11 of the 27 districts had a maintenance workshop at the district hospital. In another nine districts, workshops are planned and funding has been pledged by donors.

all levels of the health system have to be issued. Advocacy for maintenance and training of decision-makers and technical staff has to be organised and budgeted.

At *regional level*⁶⁹, a workshop of higher technical standard should be established with responsibility for more complicated repairs throughout the districts.

At *district level*, usually small workshops in district hospitals provide basic maintenance and technical services. Planning and budgeting of technical operations in the entire district should be comprehensive and include as major components:

- energy and water supply
- preventive maintenance of infrastructure (buildings, equipment, plant)
- transport management
- waste management.

Private Sector Involvement

The policy of public/private mix which has proven to be of great advantage in curative services can also be adopted in the field of technical maintenance. In numerous African countries, voluntary agencies or commercial providers have established reliable technical and maintenance services, which in some cases support public facilities.

Experience demonstrates that a well-balanced mix of in-house and private maintenance and repair services generates satisfactory results in both technical and financial terms [Halbwachs 2000]. In-house services in both private and public facilities are necessary for all simple, frequent and daily demands. Outsourcing is indicated for services that are less frequently required or more complicated.

3. Maintenance System

General Aspects of Implementation

Maintenance cannot be regarded in isolation but rather has to be organised within the national health delivery system. The central level retains responsibility for defining overall policy, developing

⁶⁹ In some countries a zonal level exists which may include several regions.

guidelines, coordinating activities and monitoring quality. Implementation functions are decentralised to the regional level or transferred to the districts; therefore technical services and maintenance workshops for the health sector are better situated at the district and regional health facilities rather than attached to a Ministry.

Maintenance and repair services have to be integrated into the management of the district, the hospital and the region. Any shortcomings in personnel, financial or logistical management will automatically affect the maintenance and repair services.

Basic steps in implementing a maintenance system include:

- concept development and definition of roles for different levels;
- identification and recruitment of human resources for maintenance (technicians or health workers with special training) at each level as part of the existing workforce;
- establishment of primary workshops in the district hospitals and secondary workshops at regional level;
- establishment of a simple maintenance information system (possibly as part of the HMIS).

Corrective and Preventive Maintenance

Repairs of medical and other equipment as well as infrastructure and transport means are summarised as corrective maintenance. However, it should be noted that maintenance is not limited to repairing damages. It plays an important part in minimising or actually preventing breakdowns and the resulting repair costs. This preventive work is called *planned preventive maintenance (PPM)*.

The essential elements of the PPM concept are:

- periodical inspections (including safety tests)
- periodical maintenance (including calibration)
- analysis of maintenance-relevant data in order to react properly to undesirable developments.

Inspection and maintenance activities are conducted according to a fixed time and personnel schedule, on the basis of checklists and type-specific procedures. The inspections are supposed to determine whether or not the actual status of a technical function differs from its projected status. PPM is intended to prevent premature wear and malfunctions (for instance, by keeping therapeutic equipment clean and calibrated, with tight seals and gaskets,

etc.) and thereby reducing repair costs enormously. One priority consideration is to guarantee equipment safety, particularly electrical safety.

Such activities aim to identify any peculiarities of any one type of equipment. If, for example, the (emergency) generator breaks down frequently, it could be due to a recurrent operator error, and the problem could be solved by calling the responsible individual's attention to the problem and modifying the operating instructions accordingly.

Such measures should be supplemented by providing appropriate *training for the users*⁷⁰ of medical equipment. They should learn the equipment's basic functions and how to operate appliances correctly in order to avoid user-induced breakdowns and to keep the appliances in good condition. The latter comprises mainly minor maintenance and cleaning activities. Social barriers, however, often prevent medical personnel from cleaning the equipment which they use themselves. In such cases, it might be advisable to provide the cleaning personnel with the required additional training.

Ideally, PPM as a prevention-oriented system should help reduce repairs to a level that is within the capabilities of in-house technicians and tradespeople.

Baseline Survey and Inventory

A systematic assessment of the state of development in the maintenance sector is indispensable for the planning of a new maintenance system. The existing "Protocols for Appraisal of Physical Assets Management in Health Services in Development Economies – PAD"⁷¹ can be used. This method comprises standardised checklists which are accompanied by evaluation keys defining the quality of the different elements to be looked at. Guidelines are also included to help with the interpretation of results. The PAD-based baseline cannot, however, replace routine inventory work.

Data on inventories of physical assets are a prerequisite for planning, maintenance organisation and, of course, financial management. Records should specify the year of manufacture/fabrication,

⁷⁰ 'Training Guide' edited by Halbwachs and Wehrlein, 1993.

⁷¹ Halbwachs, 1996.

Maintenance or new construction?

Maintenance is gradually being recognised as an important task, alongside the construction of new buildings.

However, in practice the allocation of funds does not yet follow this trend. Both at central and district level the budgets for construction are quite considerable while maintenance still receives very little support.

Recent developments in Africa indicate a change in health policy regarding maintenance: construction departments have started to employ local private firms for the repair and renovation of older buildings. In addition, donors are requested to provide funding for additional or replacement equipment.

the year of purchase, serial numbers and functionality. These data need to be updated on a regular basis and checked during supervisory visits.

Maintenance in the District Hospital

Usually, the district maintenance workshop should be located in or near the district hospital, as this facility requires the largest maintenance input. The workshop should be responsible for all health facilities in the district and it should be equipped to carry out routine inspections and maintenance as well as simple repairs.

The workshop equipment – machinery, hand tools and a basic stock of consumables that would cost about USD 10,000⁷² – should make it possible to perform:

- electrical work
- mechanical work (including plumbing)
- welding
- tasks involving electronics and medical equipment
- carpentry
- minor painting and masonry work.

Automobile repair and maintenance may also be included, but only if the private sector does not provide services of an appropriate quality.

⁷² According to Halbwachs/Issakov, 1994.

Maintenance workshop in Kissidougou District (Guinea)

The following objectives were defined:

- to protect the value of investments in the district;
- to ensure continuity of services provided;
- to reduce the rate of breakdown through preventive services.

Tasks and responsibilities include:

- inspection and maintenance of simple items;
- simple repairs including masonry, electricity, painting;
- management of the workshop;
- training and advising operators;
- receipt of new equipment;
- monitoring of contractors;
- development of appropriate facilities for water supply and solid waste disposal.

Organisational development

- After 1992 a commercial approach was adopted to involve more local resources such as personnel and private contractors.
- A revolving fund (initially donated by GTZ) and a tariff system were established.
- Some basic services were contracted out to technicians/mechanics at health centre level. This proved to be less expensive and more sustainable.
- The number of requests for assistance that could be dealt with satisfactorily rocketed from 170 in 1992 to 690 in 1996. 83% of requests came from the state-run health sector and 17% from the private sector.

Since a workshop at district level (and, even more so, at regional level) has to care for lower-level health facilities as well as the hospitals themselves, access to means of transportation will also be required. This is not to say that a special vehicle needs to be procured for maintenance purposes. Normally, suitable management of the available motor pool together with the use of public transport systems should be sufficient for the needs of the maintenance technicians.

Mobile workshop vehicles cannot be recommended because of the high follow-on costs, as demonstrated by numerous feasibility studies and project reviews (e.g. GTZ).

Maintenance in Health Centres and Dispensaries

Workshops at the district hospitals and their technicians have to organise the technical operations for all health facilities throughout the entire district. A systematic maintenance programme should be drawn up, adapted to the needs and special situation of each service. In addition to ongoing repair work, this entails regular supervision (similar to the supervision of medical services), the involvement and coordination of local specialists, and the provision of appropriate instruction and training.

The personnel in the health facilities play an important and active role; they must help maintain equipment and should also carry out minor repairs. Wherever possible, one staff member per facility should be appointed 'maintenance officer', and trained to carry out relevant maintenance work (support personnel are often suitable for such tasks). A great deal of tact is needed here to avoid triggering resentment among staff⁷³. Regular supervision must incorporate further support for the maintenance officers.

Major maintenance activities for the health centre and dispensary staff comprise:

- preventive maintenance, including: regular inspection, proper use, proper storage and regular cleaning/servicing;
- simple repairs;
- reporting and referral to the next maintenance level.

Items to be maintained or repaired at these levels include:

- buildings (roofs, doors, windows, etc.)
- furniture
- lighting and electricity
- water supply
- refrigeration
- laboratory equipment
- sterilisation.

⁷³ Quite often health staff get benefits from repair contracts by dealing with tradesmen who are personally known to them. They can then see the newly recruited 'maintenance officer' as competition.



Two containers collecting both rain and municipal water at a district hospital (Tanzania)

External Maintenance Resources

Private companies are important partners for health services. The services they offer can comprise the sale of consumables (e.g. reagents and spare parts), difficult repairs, consultancy and training services. Under certain circumstances the workshop can also be run privately.

Work can be contracted out to plumbers, electricians, carpenters, etc., or specialised firms such as lathe works, motor winding enterprises, etc. Preventive maintenance (inspection, servicing) can rarely be carried out on a cost-effective basis by private companies in the form of (regular) visits. Travel costs are prohibitive in most settings. A contractual approach would only be economically feasible if company staff were located at the health facility in question.

Maintenance work is often carried out by other government and non-government institutions in the district. The possibility of cooperating with other Technical Cooperation projects should be explored, for example with workshops attached to the ministries responsible for agriculture, transport, water supply or energy, but also with vocational training workshops and church hospitals.

In Anglophone countries in particular, one single ministry, for example the Ministry of Works, usually plays an intersectoral mediating role in this context.

Maintenance Personnel

Each district should have at least one qualified maintenance technician who has completed a two-year (or better three-year) nationally recognised course in hospital engineering, along the lines of those offered in Djourbel, Senegal or Mombasa, Kenya (both three years)⁷⁴.

This technician should be able to cope with the entire spectrum of technical problems usually encountered in district hospitals. Only more complicated repairs require specialised personnel, e.g. from the private sector.

Apart from routine work, the hospital technician should:

- conduct comprehensive maintenance needs assessments in all health facilities in the district and incorporate this data into the hospital and district health plan;
- in collaboration with the district health management team, prepare a regular working schedule including supervision of all the facilities to be inspected, and PPM;
- prepare and keep maintenance records including spare parts needed and spare parts used, work inputs and outputs, equipment downtime and reasons for this;
- classify and keep equipment/spare parts according to their importance for clinical operations, e.g.
 - a. utility plants: sterilisation, electrical supply (including generators), water, laundry, refrigeration, kitchen, steam and heating appliances.
 - b. medical equipment: surgical equipment, syringes, anaesthetics, laboratory, ultrasound, X-ray.

⁷⁴ Both institutions are increasingly offering short-term courses that can be combined in a modular fashion.



Two containers collecting both rain and municipal water at a district hospital (Tanzania)

Apart from the technicians, equipment users too are involved in maintenance since they are the main source of technical breakdowns. They should receive instruction in the correct use of the equipment and be familiar with the basic rules of simple maintenance.

4. Energy and Water Supply

The energy supply to health facilities is critical, particularly in areas with poor infrastructure. Insufficient maintenance leads to unreliable power plants and abnormal energy consumption by certain equipment, for example. However, technical solutions alone are not sufficient; sustainable funding must be available and proper management of energy resources ensured (Kempe et al., 1996). Aspects to take into account include:

- building and equipment design
- the energy mix, including renewable energies

Cooling

Cooling is a very energy-intensive process. Photovoltaic appliances are expensive to procure and to run. Often, a visit to the nearest bar selling chilled drinks will give you an idea of the technology that can be mastered locally.

- energy conservation
- power and cost monitoring.

The use of photovoltaic (PV) energy essentially depends on local circumstances and can only be part of an overall energy supply strategy. PV is a priority, not the ultimate solution in situations where the purchase and the replacement of batteries remain expensive and cannot be assured.

In many low-income countries, the mere availability of water supply at facility level remains an issue, without even going into the adequacy and reliability of these supplies. Nevertheless, the multi-sectoral PHC approach has improved availability from a combination of sources including rainwater harvesting, piped water, wells and spring water. In view of the paramount importance of water supplies for hygienic and health promotion reasons, district authorities should insist that clean water is available at every health facility. For the same reason, technical services are needed at the level of water uptake, distribution, conservation and preservation both upstream of the facility and within the facility itself.

5. Transport Management

In general, Ministries of Transport are in charge of the policy of transport management, and in most countries a special department at central level is responsible for coordinating implementation. Nevertheless, the authorities at district level have to make sure that the health teams actually have at their disposal the vehicles they need to carry out activities properly.

For vehicle repairs and maintenance private workshops should be identified unless a public workshop of acceptable quality is available. In any case, drivers should be responsible for basic vehicle

maintenance, while more complicated repair work should be contracted out.

6. Waste Disposal

Waste disposal in rural hospitals in emerging economies is generally regarded as highly problematic. However, solutions do exist that are acceptable and sustainable in financial, hygienic and ecological terms. Essential waste management can include:

- recycling, avoiding, minimising (RAM strategy)
- specially designed waste pits (Halbwachs, 1994)
- incineration - well-constructed incinerators generate temperatures that are high enough to dispose of even semi-dry products. The maintenance team is needed to ensure appropriate construction that will allow for inflow and ejection and avoid environmental pollution.

Waste management should not only be part of the district health management concept, but it should also be practised at each level of health service delivery. Tertiary level health facilities in urban areas are in a more awkward situation due to the waste quantity and the urban neighbourhood. Disposal concepts must be tailor-made and must take into account communal and commercial resources (Jantsch/Vest, 1999).

7. Costs and Financing

In the development of the district health plan the following formula can be used to determine approximate annual maintenance expenditure:

- 1-2% for buildings⁷⁵
- 3% for building services (utilities)
- 5% for medical equipment.

⁷⁵ These are estimates based on the acquisition value of the asset, and they should cover personnel, material, transportation utilities and workshop depreciation.



Incinerator behind the traditional waste dumping hole at a district hospital (Tanzania)

Table 1: Estimate of savings generated by proper maintenance. Although USD 30,000 is spent annually on maintenance, benefits can be as high as USD 32,500 under the above conditions.

	Building	Equipment	Total
Replacement costs	500,000 \$	500,000 \$	100,000 \$
Annual maintenance costs (building 1%, equipment 5%)	5,000 \$	25,000 \$	30,000 \$
Increase in life expectancy (due to maintenance)	From 20–40 yrs.	From 5 to 10 years.	
Annual gross savings (for a factor of 2 increase in life expectancy)	2.5 %	10%	62,500 \$
Net savings (after subtraction of maintenance expenditures)	1.5 %	5%	32,500 \$

However, in practice it is very unlikely that all these costs can be covered. Most public health systems in Africa allocate significantly less than 1% per annum for maintenance.

The technician(s) in the district workshop, and equipment with a medium or long service life (at least one year) should be financed publicly, wherever possible. The income from user charges may to some extent be used to cover other operating costs of the maintenance workshop. In addition, communities could contribute to the maintenance of their health services by providing labour for cleaning, repair and waste disposal.

The potential to generate additional income for the workshop through services for clients outside the health system should be examined and encouraged if appropriate. In any event, the workshop personnel should also profit from such extra income ('motivation').

Proper maintenance prolongs the life expectancy of physical assets in health services and reduces the need for replacements. The monetary benefit of maintenance can now be measured, and results indicate that maintenance can indeed produce tangible financial savings.

Table 2: Indicators for maintenance activities

Process indicators	Outcome (Impact) Indicators
<ul style="list-style-type: none"> ■ Number and composition of the workforce ■ Productivity (% of work time used in maintenance and repair activities) ■ Compliance with standardised intervention times ■ Ratio of corrective and preventive work ■ Correct application of forms and standardised maintenance procedures ■ Availability of tools and spare parts. 	<ul style="list-style-type: none"> ■ Average downtime = equipment out of function (change in staff to be considered) ■ Operating time of equipment per year (change in patient attendance and staff turnover must be monitored) ■ Client satisfaction with maintenance performance using response times, for example (only applicable if clients have a good understanding of resources).

8. Quality Management

Technical services and maintenance, as integral components of the district health system, are included in all quality management activities as described in Chapter 2 - 'Planning and Management'.

Specific indicators are used for monitoring and evaluation. They should be part of the checklists (where they exist) used by the district management teams for monitoring, so that even in the absence of a maintenance technician, maintenance activities are supervised. When available, the maintenance technician should be involved in the supervisory schedules of the management teams to avoid duplication and to save financial resources.

Process indicators describe the way, and the circumstances under which, activities are carried out. While they indicate indirectly how maintenance may actually function, it is important to ensure that outcome or impact indicators are unmistakably related to the intervention that is measured. However, in view of many other factors that may have an influence on the outcome (confounding factors), it is difficult to identify them accurately (Table 2).

The minimum requirements for a maintenance information system, which should be integrated into the existing HMIS, include

9 Technical Services and Maintenance

Table 3: Example of a job card, to be used as part of a maintenance information system

JOB CARD					
Hospital :					
Request No. :			Date/Time :		
Department/Section :					
Equipment :			Inventory No :		
Accessories :					
Reported failure :					
Received from :		Date/Time :		Sign. :	
Handed back to :		Date/Time :		Sign. :	
Technician's Report					
Job started (date/hours)				Job completed (date/hours)	
Time spent (days/hours)				Response time (days/hours)	
Completion postponed because of :					
Diagnosis/Action :					
Type of Services: <input type="checkbox"/> general overhaul <input type="checkbox"/> PPM <input type="checkbox"/> repair					
Measurements : <input type="checkbox"/> current <input type="checkbox"/> voltage <input type="checkbox"/> insulation <input type="checkbox"/> pressure					
Material used :	description	quantity		cost	
Reasons of failure :	<input type="checkbox"/> wear & tear			<input type="checkbox"/> mains unstable	
	<input type="checkbox"/> contamination (water, oil, etc)			<input type="checkbox"/> user error, handling	
	<input type="checkbox"/> dirt			<input type="checkbox"/> installation faulty	
	<input type="checkbox"/> others (specify)				
Technician's name		Signature		Certified by	

inventory, job card (see example), equipment history and a checklist for preventive maintenance.

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10. Disaster Preparedness at District Level

by Alois Doerlemann and Michael Marx

1. Background and Strategies
2. Concepts and Organisation
3. Epidemics
4. Natural Disasters
5. Refugees



Refugees returning to the DR of Congo (N.Hunt, University of Michigan, FAO, 1998)

1. Background and Strategies

Introduction

Throughout history, the people of Africa have been hit by natural disasters and epidemics. Traditionally, people used to see these as strokes of fate against which there was no very effective protection. Equally, there have always been man-made disasters, particularly violent conflicts resulting in injuries and death, devastation, displacement and food shortages. All these disasters are considered *complex emergencies*.

The population explosion and unfavourable political, economical and social conditions, especially after the end of the cold war, have been responsible for a dramatic rise in the number of complex emergencies in low-income countries. Highly infectious diseases spread like wildfire where large numbers of people live in very cramped conditions. When violent conflicts break out, neighbouring countries find themselves struggling to cope with huge flows of refugees. The public administration and health systems are increasingly strained to breaking point, because resources are generally very limited and supplies are often stolen or destroyed.

In situations like these, the majority of the population have no access to curative and preventive care. Public health programmes (e.g. EPI) are disrupted, and health professionals may flee the country or leave their working place.

Relief programmes, usually set up as soon as the emergency situation becomes known, mostly operate in parallel to local systems, and often need a relatively long time to realise which measures are most urgently needed.

Two shocking examples in the recent past are the Rwandan refugee crisis in 1994 and the protracted crisis in Liberia/Sierra Leone/Guinea during the 1990s. These crises demonstrated the lack of effectiveness and efficiency of common relief programmes, while also showing how important it is to coordinate efforts with local health services⁷⁶. Meanwhile, relief programmes have improved and well-defined guidelines and standards are available. However, they are not always put into practice, and a whole range of questions

⁷⁶ Coordination of these relief programmes was immensely difficult because of the multitude of relief agencies involved, each with its own standards, priorities and approaches.

need to be explored, e.g. how to obtain the necessary resources, how to cooperate effectively with local health systems and how to improve sustainability.

When complex emergencies occur, it is the government which must initiate effective action, including the mobilisation of public health and essential clinical services, to minimise suffering and harm. Experience shows, however, that in critical situations the central level does not have the competence it needs to prioritise and coordinate operations. And since non-governmental agencies act independently, the level of efficiency of national and international aid programmes alike is low. International organisations and policy-makers have now realised how crucial it is to involve the local population and the district health systems concerned in systematic measures to cope with disasters.⁷⁷

Strategies

Over the last decade we have found ourselves facing increasingly complex emergencies, characterised by major public health problems including malnutrition, high morbidity from communicable diseases, injuries from landmines and firearms, interpersonal violence and psychological distress.

Countries and their health systems must be able to prioritise and coordinate health interventions quickly and effectively, enabling them to minimise suffering and harm. This includes public health interventions and essential medical services. Guidelines for district-level disaster preparedness must be drawn up and updated regularly.

In complex emergencies, responsibilities have to be clarified as soon as possible and individuals identified who will be accountable to the affected populations and to the supporting international community. Following the clarification of responsibilities, a disaster management task force should be appointed. Subsequently, priority

⁷⁷ After the Rwandan crisis in 1994, various evaluation missions (1996) criticised the coping strategies and tools of international humanitarian assistance as completely insufficient. Major criticism was levelled at the lack of coordination, policy coherence and disaster preparedness, the poor quality of health care delivery, the inadequate accountability of agencies, the lack of security in camps and the inadequate response to the needs of the displaced host populations. However, there is a consensus that the Rwandan crisis was of a dimension the world had never hitherto seen.

interventions must be determined and communicated to the persons in charge without delay.

Numerous international agencies have agreed on a prioritisation process for interventions in complex emergencies⁷⁸. Under the 'Sphere Project' a large number of NGOs, together with the International Federation of the Red Cross, have cooperated to develop minimum standards for five priority technical areas:

- water and sanitation
- nutrition
- shelter
- health
- security.

Any effective emergency aid programme⁷⁹ must therefore be multisectoral. However, increasingly the effectiveness of these standards is being questioned because it may not be practicable to apply technical standards in emergency situations. Relief programmes must be enormously flexible to allow them to respond to the com-

How can health systems research support disaster preparedness?

Operational research is an important way of defining effective standards and means of integrated relief programmes in complex emergency situations. Vital factors include:

- knowing and understanding the local health system with its opportunities and constraints, as well as the stakeholders and actors involved;
- calling for a interdisciplinary approach;
- working on the agenda of the communities concerned in close cooperation with them;
- being familiar with the policy-making process and the institutional framework that links researchers and stakeholders.

This applies not only to humanitarian assistance in unstable situations, but also to stable situations. It is an opportunity for researchers to bridge institutional and conceptual gaps.

⁷⁸ For example WHO-EHA, UNHCR, USAID, CDC, EU, IFRC/ICRC, MSF et al.

⁷⁹ Some international organisations prefer the term "humanitarian assistance programmes"

plex nature of the disaster. Operational research into the coping mechanisms of a district is thus needed. It should also explore how a district can become more resilient and thus cope better with complex emergencies. We should not rely solely on past experiences but conduct forward-looking, parallel operational research.

Evidence suggests that relief programme, with their ad hoc nature, would be more effective if they were based on more comprehensive programme planning, and if they worked with more experienced and skilled professionals.

Furthermore, there is an increasing consensus among national policy-makers and international organisations that any humanitarian assistance programme should be planned and implemented in coordination with the local health system. Because of the consequences for the affected population, local services and all local stakeholders should be involved right from the start.

The main features of humanitarian assistance and disaster control when integrated into local health systems can be summarised as follows:

- Both refugees or internally displaced people and the local population are target groups.
- The available resources of aid programmes are coordinated with local health systems and local programmes, and may be integrated into these in full or in part.
- Planning (short-term action and medium-term plans) are coordinated with local authorities.
- Aid programmes should use the local structures and resources of various sectors as far as appropriate.

International aid organisations agree that all aid programmes will benefit from a strengthening of local health systems, and therefore accept funds being used for this purpose.

2. Concepts and Organisation

Responsibilities

Lessons learned from many emergency situations indicate that each sector should appoint a qualified person to observe the district in terms of the epidemiological situation and the likeliness of

future emergencies. This is clearly an interdisciplinary task, but the health sector, particularly the person in charge of environmental and epidemiological monitoring, might assume the role of coordinator.

The district authorities must set up an intersectoral *disaster preparedness (DP) unit* (or treat disaster preparedness as an ongoing point on the agenda of the intersectoral district committee). Only individuals who are authorised to make decisions and assume responsibility should be members of the DP unit. The unit must bring together all relevant stakeholders (public and private institutions, community representatives, international organisations) in order to work out the emergency strategies and action plans.

Functioning of the DP Unit

Having characterised the type and magnitude of disasters for which one must be prepared, the DP unit develops work plans in line with the specific conditions in the district in question.

The next step must be to conduct a needs assessment for human resources, equipment, material and drugs, including the necessary management structure. Enough material for emergencies, such as outbreaks of epidemics⁸⁰ (e.g. cholera or meningitis), should be available at all times so that the district can cope with the situation at least for a few days. This might include infusions, antibiotics, water containers, tents, mattresses and blankets. For other emergencies, the necessary materials should be listed, and the steps to be taken to procure the items immediately should be clarified in advance.

The management of the material and drug store requires some technical skills (e.g. regarding the dates of expiry and reordering) and a sense of responsibility (in order to avoid misuse).

Another basic element of disaster preparedness is a well-functioning information system. Correct decisions can only be made on the basis of relevant and reliable information. It is important to know where and how to obtain additional information on specific technical issues (epidemiological issues, updated information on procedures, materials and drugs).

⁸⁰ According to epidemiological patterns.

The guidelines for disaster preparedness lay down what action should be taken during emergencies, and stipulate when, where and how to contact individuals and/or institutions (governmental structures, relief organisations) that can support the response to an emergency situation. In addition:

- The DP unit must be capable of monitoring disaster probability and of managing emergency situations, which will include a number of essential steps:
- continuous situational analysis (HMIS) and reporting;
- development of short-term action plans;
- appointment of a crisis management unit (from the members of the DP unit) with clear description of each member's responsibilities;
- identification and involvement of stakeholders;
- identification of training needs and training for personnel involved;
- needs assessment in terms of infrastructure and materials, and management to ensure that these are available at all times;
- identification of financial resources that are available locally;
- identification of additional needs (human and financial resources, technical and logistic support);
- ongoing communication with authorities at regional and central level.

3. Epidemics

Outbreaks of epidemics may rapidly result in high morbidity and have fatal consequences unless there is a rapid and effective response on the part of DP units in the districts.

Some epidemics, such as cholera and meningitis, require treatment centres close to the focus of the outbreak. Community involvement, in terms of informing the public and raising public awareness and concern, can help to generate the necessary support from the community.

The WHO guidelines for disaster response should be taken as the basis for the actions of DP units and district health management teams. Other documentation produced by international relief organisations such as MSF or the International Red Cross might also be helpful.



Isolation camp for cholera patients (Burkina Faso)

Cholera

Cholera is first and foremost the result of poor sanitation, in particular a lack of clean water. The epidemic is usually not contained locally but affects whole regions. It causes acute diarrhoea with dramatic losses of fluids, and leads very rapidly to death unless treatment is commenced at an early stage. The mortality rate is 3–5%.

Unfortunately, this water-borne disease, which is mainly caused by miserable living conditions and therefore obviously a political issue, is still very prevalent⁸¹.

Meningitis

Meningococcal meningitis is the most feared disease in the “meningitis belt” of Africa, an area that extends from Ethiopia in the East to Senegal and Gambia in the West. There is also evidence that the belt is slowly creeping southwards.

⁸¹ In 1997, Tanzania faced a cholera outbreak with about 29,000 cases and a death rate of 5.4% mainly in Mtwara and Lindi Regions and in the capital, Dar es Salaam.

Sewage Systems

Example in Guinea

In the districts of Guéckédou and Kissidougou (Guinea) the regional directorates supported the construction of simple sewage systems by public and private initiatives in the transport, health and education sectors. New channels were dug and existing ones improved to carry away surface water during the rainy season. The existing water supply system was also improved, which helped reduce the number of cholera cases in urban areas.

Meningitis epidemics occur almost every year in one or more countries in this region and can infect more than 200,000 people at one time. Given the acute onset of severe illness, the rapid spread of disease through communities, and the serious morbidity and mortality, meningitis is one of the more visible causes of human suffering in sub-Saharan Africa. Despite effective antibiotic therapy, at least 1 out of every 10 children with the invasive form of the disease will die, and up to 25 percent of survivors are left with chronic neurological sequelae (hearing loss and mental retardation) and loss of limbs⁸².

Meningitis in Guinea-Conakry

There are strong indications that the meningitis belt is creeping south. In 1993 an outbreak of meningococcal meningitis (Group A, Type P1.9, clone 111.1) with more than 2,500 cases occurred in six districts of upper Guinea and for the first time in the Forest Region, to the surprise of the MoH and its international partners. Only four weeks after an alert was raised, an immunisation and surveillance programme was initiated and 75% of the urban and 30% of the rural population were immunised (total population of 650,000 inhabitants). The value of this campaign was shown by an immediate drop in the numbers of patients, and by the fact that the attacks were less severe. After this major epidemic a preparedness programme was set up in the districts of Kissidougou and Gueckedou. During the following years, several minor outbreaks were reported, but could be kept in check.

⁸² WHO, 2001.



Triumph of vaccinations

- Smallpox (variola) was the first disease to be completely eradicated, and this success has not since been replicated. This dreadful disease, which used to ravage entire populations, was beaten by means of vaccination campaigns started by WHO in 1968. The last cases were notified in 1977.
- Poliomyelitis is caused by another virus and is a candidate for eradication. Oral vaccination was introduced in 1954 and the number of reported “acute flaccid paralysis” cases is constantly decreasing towards zero.
- The majority of serious childhood illnesses, including measles, neonatal tetanus, poliomyelitis, whooping cough, diphtheria and tuberculosis, are being tackled with the help of expanded programmes of immunisation (EPI), first launched in the sixties. Many countries have reached coverage rates of 70–95%. Undoubtedly, EPI is one of the most successful programmes implemented by modern health systems.

(Photo: District hospital in Kibuye, Rwanda)

In case of outbreaks of meningitis the districts concerned have a special responsibility to fight the spread of the disease. The most urgent steps to take are rapid case reporting and isolation, organising immediate treatment and vaccination campaigns and building contingency stocks of the vaccine.⁸³

Other Epidemics

Several other epidemics, some of them endemic, remain important in terms of public health. Onchocercosis and schistosomiasis are still endemic in many countries. Effective drugs are available but effective control needs behaviour changes, which can only be brought about through health promotion activities and epidemiological monitoring. The plague still exists in several countries, but the epidemics can be controlled effectively at district level with systematic use of insecticides and rodenticides, and treatment of cases in isolated treatment centres. Again, community involvement is essential.

Finally, it must be stressed that vaccination is the best way of combating most viral diseases provided districts manage to ensure high coverage rates for vaccination campaigns.

4. Natural Disasters

The most important natural disasters are floods and droughts, which may occur anywhere on the African continent. Hurricanes only occur on islands in the Indian Ocean and, to a lesser extent, along the East African coast. Floods can occur unexpectedly on a catastrophic scale within a short period of time, whereas droughts build up over a longer period.

DP units should review earlier emergency situations and build on their own experience. It should be possible to identify the frequency and the probability of natural disasters, and the measures that can be taken locally to either prevent them or to cope with their impact. In poor areas it will probably be necessary to depend on local resources and locally available inputs.

⁸³ WHO and PATH (Program for Appropriate Technology in Health) started developing a new vaccine that provides longer-lasting protection than in the past.

Natural disaster preparedness not only means knowing how to react appropriately to a new emergency situation, but also taking appropriate action to prevent a disaster. One priority should be effective sewage systems, particularly in urban settings to cope with devastating floods that cause injuries and infectious water-borne diseases.

Preparedness for hurricanes, however, needs more stable infrastructure measures in order to prevent the destruction of buildings, and protect against the powerful rains and floods that accompany these heavy storms and cause many casualties.

5. Refugees

Large-scale migration, often as a result of political instability in a given geographic area, is a challenge for any host community, including health services. Displaced people may introduce new infections to a host community, or they may themselves become more vulnerable to disease. Increased morbidity from communicable diseases, injuries from landmines, firearms, interpersonal violence and psychological distress are very common. Major public health issues in complex emergencies are known to be malnutrition, diarrhoeal diseases, measles, malaria, respiratory infections, psychological problems and physical injuries due to violence. Large-scale flows of refugees also tend to exacerbate many chronic conditions in disaster-affected areas⁸⁴.

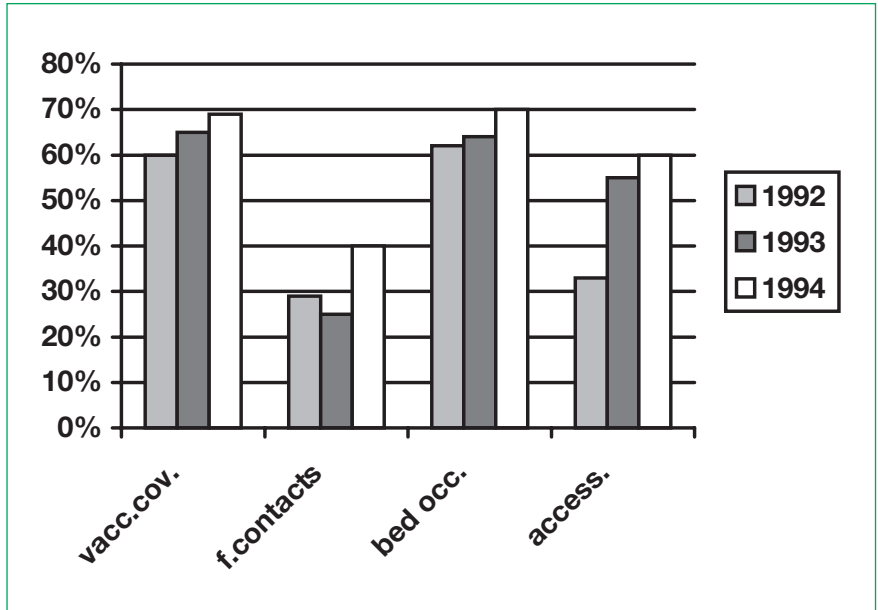
In order to cope with the influx of refugees, which rapidly over-stretches the local capacities, district authorities and DP units need to take the initiative. They must:

- request additional support from the central level and other sources such as cooperation partners.
- identify areas or existing infrastructures where refugees can be accommodated upon arrival (camps). The health sector should explore in advance the feasibility of setting up health care services on available land. Alternatively, it should prepare and strengthen existing health care structures to allow them to cover the refugee population.

⁸⁴ Banatvala reported this experience from Kosovo in 2000.

Figure 1: Development of health service indicators in Gueckedou 1992–1994 In spite of the doubling of the population due to the influx of refugees, the indicators for the Guinean population – without refugees – improved:

Vacc.cov.: vaccination coverage children 0–11 month (completely vaccinated), f.contacts: first curative contact rate per year and inhabitant, bed occ.: bed occupancy rate (Gueckedou Hospital), access.: accessibility < />=5km from a HC.



Usually, refugees stay for a longer period, since the factors that caused them to flee do not change rapidly. Thus, comprehensive measures to ensure a minimum of health and social care have to be organised. The most important aspects are food, shelter, sanitation facilities and security. Then, health care and education have to be assured. Later, income-generating activities must be facilitated.

As mentioned above, it is important for both central and district health administrations and international organisations to integrate relief measures from the outset. This includes providing support for local structures in the form of additional funding and physical inputs. Rather than luring away qualified staff from local public or private services to run a parallel aid programme by offering higher salaries and better working conditions, local management and insti-

Support for crisis management at district level – Guinea Conakry (1992–1998)

Background

- Since 1990 Guinea has been flooded by up to 700,000 refugees coming from the neighbouring countries of Liberia and Sierra Leone where civil war has been raging. The border districts of Guéckédou, Kissidougou and Faranah have been the most affected. They felt the ongoing impact on their social and economic structures, during a time when they were also hit by meningitis and cholera epidemics (as well as by flooding).
- From the beginning, the Guinean Government made every effort to run assistance programmes with the objective of integrating the refugees rather than running parallel refugee camps. This helped them strengthen the local district health systems. Both refugees and local populations were considered as target population. Even in the long run this approach was successful.
- Since 1995, the district health management team of the three districts has been responsible for providing both the local population and the refugees with adequate health care services. Apart from a long-term development cooperation arrangement with GTZ, no international relief agency is currently supporting the health sector. The health budget from UNHCR is transferred directly to the district health management team.

Main Achievements

- Human and institutional capacity-building: district health management teams and district authorities were strengthened, and local crisis committees were established. Local health personnel at all levels have been trained in crisis management skills.
- Improvement of the information system: rapid reporting (warning system); health centres connected by means of radios to the district health management team.
- Continuous availability of drugs and logistics: an emergency stock of drugs and material has been created including vaccines against meningitis, expendables as well as technical equipment such as mobile power generators, pick-ups, cholera beds, tents, etc. The refrigeration chain of the district is now complete.
- Treatment close to the communities: a cholera treatment centre has been built and sites for additional treatment centres (meningitis, cholera) have been earmarked on the premises of district hospitals.

- Inter-Sectoral cooperation in crisis management at district level has been strengthened, including all national and international NGOs.

Lessons Learned

- Due to the management approach focusing on participation and transparency and thanks to the competence of the district health management team in analysing the situation, setting priorities and planning, numerous actors with different interests and priorities collaborated on one programme and helped implement activities.
- It is possible to create competence at district level so that emergencies can be identified at an early stage and emergency response measures initiated. The sense of responsibility and the capacity to react, using resources available at district level, is highly motivating.
- It is possible to gain the recognition of international funding organisations (such as UNHCR, WFP, churches and bilateral donor organisations) for local management capacity at district level, and to have them delegate responsibility to this level.

Despite the increased workload in the existing health services, the health service output data for the host population improved. Between 1992 and 1994 the rates of major obstetric interventions, vaccination coverage, bed occupancy rates, accessibility and first contact rates for the Guinean population have remained stable or have even improved (Marx, 1995). Economic changes in the refugee-affected areas, improvement of transport and “refugee-induced demand” for health care may have helped to improve the use of services by the host population (Van Damme, 1998).

tutional capacities should be strengthened. Training and coaching of staff should be key elements of additional support to the districts that must be provided by international relief agencies.

Great care should also be taken to prevent conflicts between refugees and the host population. These can occur only too easily if aid provided for refugees is better than the support received by local communities.

International organisations should therefore integrate their support measures into existing structures from the outset, and cooperate closely with the local DP unit. Avoiding the creation of par-

allel and unsustainable structures and strengthening the existing services can make support programmes both more effective and more efficient (e.g. in the health district of Gueckedou/Guinea, 1992-1994).

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