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Analysing Health Systems Dynamics. A framework

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A framework

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Preface to the second edition

This new edition comes less than one year after the publication of the first edition. In that short time, interesting new contributions to the domain the field of Health Systems Research were made and our framework has been field-tested in teaching and in a number of projects and country studies. It was applied in a concept paper in collaboration with the World Bank, WHO and the Roll Back Malaria Programme (Van Damme et al. 2011), in a study commissioned by the UNICEF West and Central African Regional Office and the West African Health Organization on the service delivery and high impact interventions (Boussery et al. 2011) and a commissioned paper about the interface between programmes and general health services with regards to neglected tropical diseases (Marchal et al. 2011). These studies allowed us to refine our vision and prompted us to revise this text.

This second edition emphasises more clearly what makes our framework to stand out from others. We relabelled our framework as ‘analysing health system dynamics’ to emphasise its essential characteristic. This edition also comprises an enlarged section on health systems strengthening, while the section on leadership & governance was revised by Sara Van Belle and the section on Supply of drugs by Christophe Luyckx and Raffaella Ravinetto. Bart Criel, Guy Kegels, Marjan Pirard and Wim Van Damme provided additional comments. This edition was edited by Josefien van Olmen, Sara Van Belle and Bruno Marchal and the text was approved by all authors.

Executive Summary

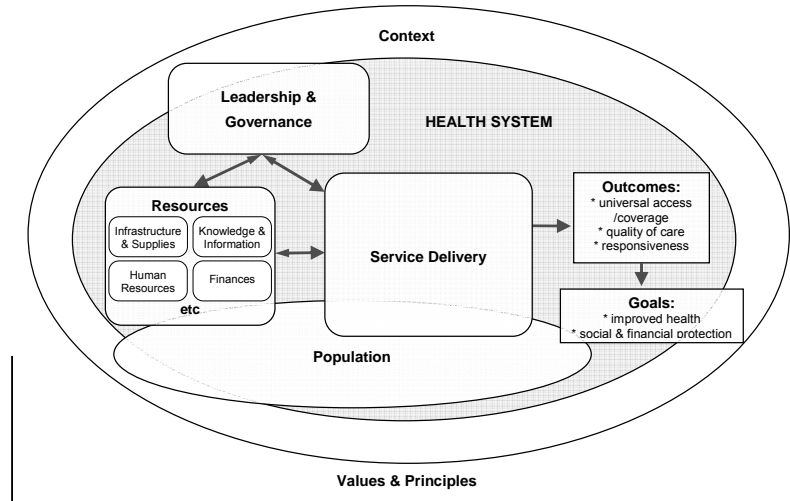
The attention for Health Systems (HS) and Health System Strengthening (HSS) has re-emerged at the forefront of the global debate on health since several years. This document presents a framework for description and analysis of the *dynamics* of health systems that can be used by anybody seeking to analyse and strengthen health systems.

The framework allows description of any health system at national, intermediate or local level. Furthermore, it can be 'loaded' with specific values and principles so that it becomes a normative framework for analysis and assessment. As such, it can contribute to the development of strategies for action.

The framework consists of *ten elements and their interactions*, which are considered as essential and constitutive of any health system (see fig. 1): 1) goals & outcomes; 2) values & principles; 3) service delivery; 4) the population; 5) the context; 6) leadership & governance; 7) the financial resources, 8) the human resources, 9) infrastructure & supplies, and 10) knowledge & information.

This framework and this book are the product of a *consultative process* that started with a literature review on models and frameworks on HS and HSS. Through consecutive discussion meetings, more than 20 experts from the Institute of Tropical Medicine, Antwerp and visiting staff from partner institutions participated in writing the first edition of the text. For the second edition, a smaller team revised and updated the text as explained in the Preface.

Figure 1. The health system dynamics framework in its generic form



The emphasis of the framework is on the health care system. It focuses on its central axis between governance, human resources, service delivery and population and on the interactions between all elements. The central axis essentially transforms the main inputs of financial resources, supplies and infrastructure, and health information into *outcomes and goals*. As such, it looks at performance, but it takes into account the influence of the other factors in- and outside the system. More specifically, a health system is part of society, which implies a central role for the *population*, on the receiving end as patients and, via representation and other means, in governance of the health system. The framework acknowledges that HS only have a partial influence on the health outcomes of a population. Social, cultural, economic, political, genetic and environmental *factors* determine people's health. Moreover, many of these factors have a direct influence on the system's functioning.

The arrows in the framework indicate that the relations between the elements are dynamic and reciprocal. HS are social systems, comprising people and organizations, and their interactions with others. Being an open system, the health system is embedded in a context that influences each part of the health system. HS can thus best be considered as complex adaptive systems, a view that emphasises interaction, feedback loops and interdependence between its elements, and the possibility of emergent, generative and non-linear processes.

This book consists of three parts. The first part presents the ten elements and their interactions. A description is followed by a discussion of the key issues. The second part presents our view on health system strengthening. It presents a discussion of the process of HSS and guiding principles for decision-making and action. This is illustrated by a discussion of three scenarios for HSS by disease control programmes. The third part illuminates how the framework can be applied to different levels of the health system and presents three case studies. Finally, the annex gives an overview of frameworks that have been developed by other authors and that have been instrumental in the discussions that led to our framework.

Our vision in summary

The *goals* for a health system are improved health, social and financial protection, and responsiveness to the expectations of the population. To contribute to these goals, the health system should organise health services that ensure universal access for all citizens to care of good quality that is responsive to the actual needs. This requires strategies with a collective and an individual dimension. Financial protection refers to the protection of people against the economic consequences of disease, whilst social protection also embraces the vulnerability of ill people.

Access relates to how many people can use a health service, while *coverage* is traditionally used to define the proportion of a target

population that benefits from an intervention. Providing access implies searching for a balance between responsiveness to people's felt need and excessive medicalisation and overconsumption of health care. Utilisation rates can be used as an indicator of comparison. *Quality* of care and of other health service interventions entails effectiveness, efficiency, safety, patient-centeredness, integrated and comprehensive care, continuity within and beyond a single episode of disease and beyond the visits to one specific health institution. *Responsiveness* is being responsive to the needs and demands of the population and its different subpopulations, at individual level and community level. The package of care should be defined taking into account both rationally defined health needs and the broader demand of individual patients and the population for health care. It should evolve along with changes in those needs and demands.

Values influence the debates around HS and the choice of directions. They are, for instance, implicit in the following concepts often used in the health debate: 'health care as a right', 'participation', 'solidarity', 'choice', 'autonomy', 'security and protection'; 'efficiency and effectiveness'; 'maximization or optimization'; 'individual and collective perspective'; 'a cosmopolitan or national paradigm of social justice', 'equity', 'sustainability'. The variation in interpretation and valorisation of values and principles and the underlying tensions result in major challenge to decide on common goals and values in a health system. The values at stake and the balance are unique to each context. Priority setting ideally occurs within the country, taking into account technical criteria and broader societal values and interests, whereby existing power balances cannot be ignored.

HS are social institutions and are shaped and influenced by wider societal change: they reflect the society in which they are embedded. *Interaction with the context* involves a continuous adaptation to social, economic, technological, cultural, political, regulatory and environmental developments and transitions over time.

Health services are all services that have as primary purpose the improvement of health. They are diverse in nature and can be delivered to the population via multiple platforms. The context of scarce resources and hence the need for rationing often leads to a selection of prioritised interventions. The choice for delivery platforms depends on the nature of the service, the capacity of these platforms and other factors such as regulation and disease burden and is highly path-dependent. A strong health system is composed of a mix of (somehow) balanced platforms.

Service providers can be categorised as private or public, for-profit or not-for-profit, formal or informal, professional or non-professional, allopathic or traditional, remunerated or voluntary, although boundaries are blurred. Most HS are pluralistic and constitute of a complex mixture of categories, partly as a result of planning and organization and partly due to personal initiative or spontaneous evolutions. We believe that at local level, the health system should function as an integrated system, meaning that there are no gaps in access, an optimal flow of patients and information and the patient is helped at the most appropriate level. The first line health services are at the core of this system. Given the pluralistic nature of most systems, integration of these actors and services requires good coordination.

The *population* is involved in the health system as patients or customers, but also as citizens having rights and obligations and as funders or even suppliers of care. The concept of participation includes a wide variety of approaches on a scale of increasing empowerment, from mobilising people to contribute to inputs, over common decision-making processes, to increased capacity to autonomously recognize and act upon situations. Strengthening empowerment of a population, both at individual and at community level, demands different approaches both at the supply and demand side. People's health seeking behaviour is determined by pragmatic and eclectic decisions. Determinants include physical financial and

socio-cultural factors, accessibility, the reputation of and trust in a provider or a facility.

Service delivery is closely linked to all other elements in the health system. The availability of resources, especially qualified staff, and the management of resources determine the possibilities for service delivery. Choices dealing with optimal delivery models for different health services and platforms and with the management of human resources forms an integral part of the governance function of the health system.

Governance is defined as policy guidance to the whole health system; the coordination between actors and the regulation of different functions, levels and actors in the system; optimally allocating resources and ensuring accountability towards all stakeholders. Although many actors have an influence on governance, there is a central role for the state in ensuring equity, efficiency and sustainability of the health system. This requires a strong capacity at the Ministry of Health (MOH), its deconcentrated services or decentralized structures and local governments. The health system is accountable to the population at all levels, from the individual provider towards the patient and from the MOH towards the overall population.

Financing involves the acquisition, the pooling and the allocation of financial resources in such a way that it contributes to goals and outcomes, taking into account equity, efficiency, accountability and sustainability. The way in which different health services are financed and how providers are paid influences directly which type of services are being delivered in which manner and thus the access to services in general.

The transaction intensity of many health services makes professional staff one of the scarcest resources in many HS. The *health workforce* can only meaningfully contribute to the performance of the health system if health workers are available, competent and performing up to standards. To create an enabling environment,

human resource management ideally consists of a package of practices and strategies balancing financial and non-financial incentives with control measures and regulation, and maintain values and ethics.

Developing the health system *infrastructure* implies ensuring enough health facilities that are within proper reach of the population, well equipped and well maintained. *Drugs* are a crucial commodity in any health system. Poor availability, supply and quality, high cost and inadequate prescription are frequent problems.

Information and knowledge is needed for monitoring, evaluation and research, clinical decision-making, organizational management and planning, analysis of health trends and communication. The priority of routine information systems should be their potential to contribute to sound decision-making, limiting the collection to those data that are necessary for that purpose. Knowledge and information need to be shared in all directions, vertically and horizontally, so that the ongoing processes of practice, education and research can feed each other.

Any health system strengthening intervention is perhaps best seen as a continuous development in four phases that are not always easy to separate: 1) problem analysis, 2) stakeholder analysis, 3) prioritisation and 4) coordination of interventions. The steering of this process is a central element of the governance function. This, indeed, encompasses the coordination, the interaction and negotiation between actors and the creation of mechanisms for priority setting. Through ensuring the fairness of the process, chances of aligning the actors towards the overall goals and values may increase.

We present some principles for HSS. First, in order to engage all actors in a health system in striving to reach the overarching goals in a process of alignment and coordination, dialogue is as essential as other steering mechanisms such as bureaucratic control measures and incentive structures. Such dialogue starts with the explicit recognition of each actors' interests and goals, but should move to reaching a consensus on aims and goals, and priorities. Second, the dynamic HS

model points to the importance of the central axis of the governance function, the health workforce component and the service delivery component. This axis often needs attention first, as all other functions of a health system depend on it. Third, strengthening the central axis is a long-term effort. It necessitates continuity in time of HSS processes and the creation of structures that ensure institutionalisation of sound processes. Fourth, HSS entails a continuous interaction with and adaptation to context. Attention should be given to flexibility and the process of HSS should ensure that mechanisms are in place to learn and adapt.

Looking at the interface between disease control programmes and general health services allows to illustrate these principles and to differentiate between three scenarios for HSS. The first one, the 'do not harm' scenario, is the most minimalistic scenario, in which DCP managers keep the focus on their own DCP goals - i.e. to maximise the reduction of the burden of disease - while avoiding negative consequences for the general health services. The second scenario, 'selective health system strengthening', foresees strengthening those health system capacities that are required to successfully implement and support the DCP's objectives and that deliberately try to create positive 'spill-over' from their own activities to other services. It fits mainly the situation when DCP activities need to be partially or completely integrated in the general health services. The third option, 'Comprehensive health system strengthening', is the most ambitious scenario, requiring coordinated efforts of all actors on the basis of a shared long-term vision that is translated into coherent policies to reinforce the health system as a whole. DCPs fully engaging in HSS would participate in joint comprehensive assessments and planning processes and be prepared to reassess their priority interventions in the view of overall health system goals in a process of alignment. The most important capacities of health systems may need most attention: the governance function, the health workforce component and the service delivery component.

Acronyms

| | |
|----------|--|
| CHW | Community Health Workers |
| DCP | Disease Control Programme |
| DPH | Department of Public Health, ITM |
| GERM | Groupe d'Etude pour une Réforme de la Médecine |
| HIV/AIDS | Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome |
| HR | Human Resources |
| HS | Health Systems |
| HSS | Health Systems Strengthening |
| ITM | Institute of Tropical Medicine |
| Km | Kilometre |
| LIC | Low Income Countries |
| LHS | Local Health System |
| MDG | Millennium Development Goals |
| MOH | Ministry of Health |
| NGO | Non-Governmental Organization |
| PFP | Private For Profit |
| PNFP | Private Not For Profit |
| WHO | World Health Organization |

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Thanks too for the contributions of Bart Criel, Guy Kegels, Christophe Luyckx, Bruno Marchal, Marjan Pirard, Raffaella Ravinetto, Sara Van Belle, Wim Van Damme and Josefien van Olmen to this second edition.

Introduction

The attention for Health Systems (HS) and Health Systems Strengthening (HSS) has re-emerged at the forefront of the global health debate since the start of the new millennium, but 'health systems' has been a major theme in public health since the 1960s. This was a period of global optimism during which a vision that emphasised personal and societal development sustained by broad social values emerged. In public health, concepts of health systems broadened to include more than the medical and technical focus of the preceding decades. This health systems perspective was a central element of the Alma Ata conference, a landmark event in the development of primary health care and the linking of health with the broader context and development (Alma Ata 1978). Donabedian was one of the first to look at the interrelations and processes in health care and outcomes and to describe quality of care in those terms (Donabedian 1978; Donabedian 2005). In the aftermath of the Alma Ata conference, however, the focus shifted to a more selective approach to health care, emphasising technically formulated interventions that were chosen on the basis of their cost-effectiveness. This gave rise to a fierce and long debate between advocates of comprehensive and selective approaches, also framed as horizontal and vertical, or general health care versus disease control interventions (Unger and Killingsworth 1986).

This evolution coincided with conceptual work and action-oriented research within the Department of Public Health of the Institute of Tropical Medicine (ITM). Field studies in countries in the South contributed to the deepening and broadening of a vision on public health and health care organization (see for instance (Kasongo Project Team 1981). The health system approach that was developed at the ITM focused on health service organization and the organization of health systems at local level and was not only descriptive. Normative

models for local health service organization were developed on the basis of explicit values and were tested in real-life conditions.

Departing from the basic assumption that health has not only a physical, but also a psychological and social well-being dimension (World Health Organization 1946), the guiding principles for health service organization included the relative value given by people to health and health care; the importance of participation of the population (not only understood as instrumental but also leading to empowerment); and the premise that decisions on health interventions should be technically sound and guided by efficient use of resources.

Strategically and methodologically, analysis and action were guided by systems theory, acknowledging that health interventions cannot be conceived in isolation and that there is a constant need for adaptation to and development in line with the context. This view corresponds with the current concept of 'complex social systems'. It led to an emphasis on local planning and bottom-up approaches to influence policy-making. Systems' thinking indeed leads to reluctance to implement one-size-fits-all solutions and to systematic standardisation of solutions to issues where social dynamics are at play.

In the domain of public health, the conceptualisation of health systems at national level started receiving more attention in the 1980s with models that describe actors and processes. The World Health Report 2000 presented a broad definition of a HS as "all organizations, institutions and resources devoted to producing actions whose primary intent is to improve health" (World Health Organization 2000) and this has become widely used, even if it has been subject to intense discussion.

Since then, a flurry of health system frameworks has been published. They serve different purposes, from describing or analysing existing situations to being predictive and prescriptive (Hsiao et al. 2009). There are comprehensive frameworks for the national level, including WHO's Health System frameworks (World Health Organization 2000; World Health Organization 2007; World Health

Organization 2009). This has been translated into a toolkit to assess health system strengthening (World Health Organization 2008b) and a several publications that focus on the organization and evaluation of specific building blocks of health systems (World Health Organization 2011). de Savigny and Adam (2009) presented the 6 building blocks model from a more dynamic perspective, using complex systems thinking to expose the interactions between these blocks and putting the people in the centre.

Other frameworks zoom in on specific 'building blocks' (e.g. funding flow frameworks), the interaction between actors (e.g. demand-supply framework) or on the interface between different components (e.g. frameworks for integration between programmes and health services). The World Health Report 2008 presented an important framework that focused primary health care, but at the same time presented well the links with the overarching goals and other elements of the HS (World Health Organization 2008a). Shakarishvili et al. (2010) give a comprehensive and analytical overview of the differences in existing health system frameworks, which is partly presented in annex 1.

The starting point for this book was a literature review on health systems and frameworks for HSS. Insights from the papers retained for review were compared with the views of the authors during a series of meetings. This led to a discussion paper to which experts of different departments of the ITM and of collaborating institutes participated. The framework that emerged from this process was used in teaching and applied by students of the Master in Public Health at the ITM and in case studies presented at the Geneva Health Forum 2010. Some of these applications are presented in the last part of this monograph. The discussion text was further refined and published in its first edition at the end of 2010. Since then, the framework has been applied in two multi-country studies on health systems and health services that have been carried out by ITM in collaboration with the World Bank, UNICEF and the World Health Organization (Boussery et al. 2011; Van Damme et al. 2011). This second edition allowed for

a revision of the text based on these experiences and on ongoing studies in which the authors are involved.

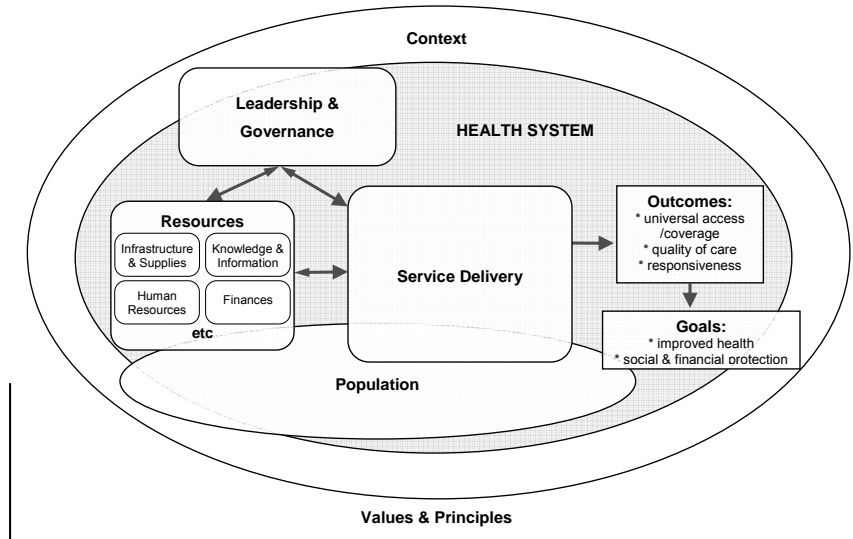
Aim and scope of this book

This book aims at providing a framework enabling a comprehensive view on a Health System, its composing parts, its interactions and its functioning. It deals with questions such as: What is a health system? What do we understand by HSS? What are the relations and tensions between different points of view? As such, it serves as a reference document for students, researchers and, indeed, anyone interested in health systems and HSS. Our framework primarily serves an analytic purpose. It is meant to describe and analyse the structure and functioning of a health system at national, meso- or micro-level. The next sections provide explanations of the general concepts and introduce specific topics and subsystems within health systems and how to strengthen them.

A framework for analysing the dynamics of health systems

This paper's framework incorporates elements of many frameworks such as the WHO building blocks (World Health Organization 2007), but intends to go further. It emphasises that a HS should be geared towards outcomes and goals and that HS are and should be based on values and principles. We consider the organization and delivery of health care services as the central process. Besides this, a health system interacts with the population and with other actors and is situated in a particular context. This brings us to a framework that consists of ten elements and their dynamic interactions: 1) goals & outcomes; 2) values & principles; 3) service delivery; 4) the population; 5) the context; 6) leadership & governance; and 7-10) the organization of resources (finances, human resources, infrastructure & supplies, knowledge & information).

Figure 1. The health system dynamics framework



The dynamic perspective of our framework is based upon the notion of complex adaptive systems. Health systems are composed of many actors and organizations that interact with each other. They are open systems, drawing resources from their environment but also needing to be responsive to that environment. Interactions between the elements take the shape of feedback loops and contribute to generative processes. Given the central role of human actors and their interrelations in any social system, processes of communication, coordination and regulation often result in non-linear responses. Actors exert forces and this leads to emergence of dynamic equilibriums. Finally, such systems are path dependent: history plays a role in explaining how choices are made when a health system needs to respond to opportunities and constraints.

This is the most basic form of the framework, which can be used to systematically analyse an existing situation at different levels (national,

district, health care organization) or for particular problems. We present some applications in part 3.

Goals

A health system plays two roles simultaneously: a protective and a responsive role (Marchal et al. 2011). These roles relate to specific goals, which are often pronounced in health policy documents or strategic 5-year plans. The World Health Report 2000 defines the goals for a health system as improved health, social and financial protection, and responsiveness to the expectations of the population (World Health Organization 2000).

Underlying the goals are values, which are often made far less explicit. Yet, they drive the negotiations and decisions concerning the choice of goals and priorities, as well as the choice of strategies to attain these goals. We will discuss values later.

Goals represent the expected impact of health system interventions. Their attainment is not dependent on the health system only, hence its place in the framework partly outside of it. The framework thus acknowledges that social, economic, political and other factors are major determinants of health outcomes, well-being and satisfaction of people in general.

The definition of goals and the choice for a particular balance between goals reflects the interests and values of the actors that make up the health system at central or local health system-level. This balance is the result of power relations between the actors and may reflect the political context and the influence of global, bilateral and other 'external' actors. We will come back to this in the chapter 'interaction with the context'. As we will discuss below, it is a key function of governance to make these different values and tensions explicit and to give accounts to the actors involved in the process, including the population, about the choices made. The governance function should also coordinate and steer the process of negotiation in a transparent way.

Improved health

Health can be considered narrowly as ‘absence of disease’ or, more holistically, as ‘physical, mental and social wellbeing’ (Alma Ata 1978; World Health Organization 1946). Improved health is often measured as a decrease in burden of disease, with indicators such as crude and disease-specific mortality rates, Disability Adjusted Life Years, Quality Adjusted Life Years and Disability Adjusted Life Expectancy, which capture mainly the bio-medical aspects of health. It is difficult to capture the broader definition of health in an indicator that could be measured at population level.

Our framework supports the WHO concept of health. The HS can contribute to improved health by focusing both on the population dimension (for example through prevention and health promotion that aims at decreasing the disease burden) and on the individual level through provision of curative and rehabilitative care.

Financial and social protection

Financial protection refers to the protection against economic consequences of disease and usually refers to arrangements for ensuring financial access to care of decent quality and for ensuring income and financial support in case of sickness. The ability of a country’s health system to provide financial protection to its population is an important determinant of the confidence of users in the health system. In most countries, there are several coexisting systems to cover different parts of the population, which will be further described in the section on financing. Assessment of the attainment of this goal comprises process indicators (e.g. description of health financing systems, analysis of national health expenditure accounts) and their effects (e.g. the number of people experiencing catastrophic health expenditure and population differences in health status).

Social protection is a broader concept. Social protection implies relief from deprivation (e.g. ensuring access to health and other social

services), but also addressing structural causes of inequity and power imbalance (Michielsen et al. 2010).

Outcomes

In the *outcomes* box, we place access, quality and responsiveness. These are the direct results of the organization of the health care system and the delivery of care. We consider effectiveness, efficiency, sustainability, etc. as attributes that can be used to describe and assess all the processes in the health system and discuss them in the next chapter, values and principles. Service delivery is to contribute to universal access for all eligible citizens, and to care of good quality that is responsive to the needs of people. The term 'responsiveness' is a much-debated term. We consider 'responsiveness' as an immediate outcome of service delivery instead of a goal of a health system. We will discuss each of the identified goals and outcomes separately.

Access & Coverage

Access and coverage are determinants of utilisation of health services. **Access** relates to how many people have access to a health facility or particular service. It has different dimensions: financial accessibility (affordability), psychological and cultural accessibility (acceptability) and geographical accessibility. Universal access implies organising a health system to provide health services that are accessible to all in all its dimensions. Access may be increased by broadening the package (depth) or extending the reach to excluded groups in the population (width) (World Health Organization 2008a).

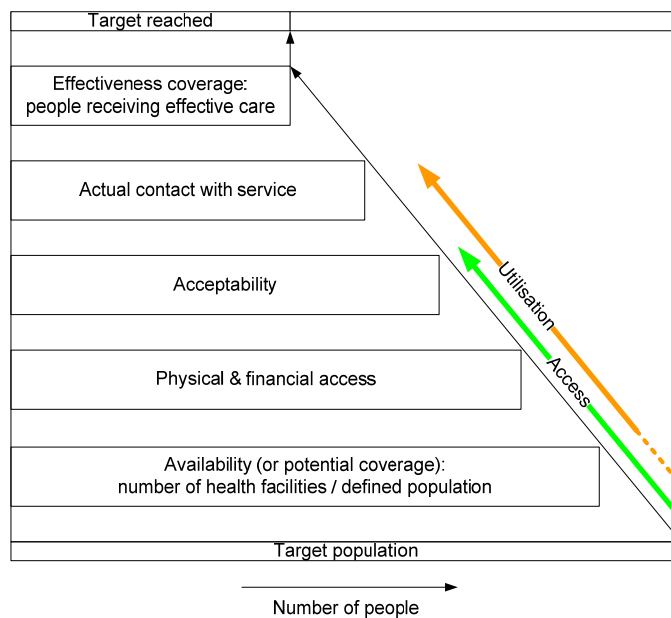
Coverage is classically used by epidemiologists and disease control programme managers to define the proportion of a target population that benefits from an intervention¹. Coverage implies the notion of an

¹ The term coverage is here used as actual coverage. Sometimes, coverage is used to denote the distribution of a certain intervention among the population, without the actual use of this

objective to be achieved and targets that can be set. It should be noted that the term 'coverage' is also used for other interventions in the health system, such as health insurance. In health policy and public health literature, universal coverage refers to universal access to a specified package of health benefits and social protection.

(Tanahashi 1978) has shown how the term coverage can also be used for general health services and what is the relationship between coverage and access (Figure 2). The Tanahashi model is conceptually similar to the Piot-Fransen model (Hayes et al. 1997). It makes explicit and visualises the different bottlenecks in the health seeking behaviour process.

Figure 2. Coverage and access to health services (based on Tanahashi 1978)



intervention. This is a potential coverage and related to the provider capacity to deliver an intervention (Tanahashi 1978).

Figure 2 shows how the multiple dimensions of access and coverage influence actual utilisation. *Access* takes the user's perspective to describe the availability and access to health facilities and programmes. For each of its dimensions, indicators can be defined. *Coverage* is measured as the ratio of the population that benefits of specific services in relation to the target population and follows the planner's perspective. It has been mostly used in assessments of preventive services and health promotion. *Utilisation* is used to assess curative and rehabilitative services and reflects the number of people who actually use a particular service (the actual contacts with the facility or particular service, related to the total population).

The assessment and measurement of access to general health services is methodologically difficult, firstly, because access is multidimensional. There is no comprehensive or composite indicator that captures access in all its dimensions. *Geographical access* is often expressed in terms of the proportion of people living within 5 km of a health facility, but in order to interpret such data, one needs a detailed description of the local health system, the key geographical features and other factors that influence transport and physical access. In urban areas, affordability is usually a stronger determinant of utilisation than physical access.

Availability can be considered as a proxy for access (as well as a determinant). It includes the number and distribution of health facilities & beds, with additional information about the type of facility and the differences in distribution, for instance across geographic areas. Indicators to describe the package of services that is available include the general basic capacity (% of facilities meeting a defined standard related to amenities, equipment, infection control, human resources, drugs and diagnostics, or capacity for specific health problems, such as child health, malaria, safe motherhood). Quantitative indicators need to be complemented with data that appreciate the less tangible dimensions of access and quality of the available services, for instance through patient exit interviews. Also

utilisation is often used as a proxy indicator for access to health services, because maximum accessibility is assumed to result in optimum utilisation. However, to the degree that utilisation is determined by other factors, it is a poor indicator of access.

A second difficulty for the evaluation of access, and utilisation for that matter, is that there is no universally valid standard. For certain interventions, such as immunisation and health insurance, the desired coverage is 100 % of the population. Coverage can then be measured as the percentage of people that have been immunised or have health insurance. For general health services, the desirable utilisation is not easily determined, as this depends on other factors, such as burden of disease and the presence of alternative services, including self-care and support.

When assessing utilisation, the degree of responsiveness to people's felt need and the degree of medicalisation of health problems, with overconsumption of health care as consequence, needs to be evaluated. Utilisation rates are therefore best used as an indicator of outcomes, for instance to monitor the effect of changes of differences between health care organizations in comparable situations, instead of as a target to be achieved.

Quality of care

The definition of quality of care depends much on the perspective of the actor. Patients, community members, health service managers, health programme managers and health care providers will all define it in different ways.

Quality of care (and of health service interventions in general) comprises the components of effectiveness, efficiency, safety, patient-centeredness (giving information, shared decision making, combining a biomedical, psychological and social perspective), integrated and comprehensive care (addressing the needs for curative care, prevention and health promotion), continuity within and beyond a single episode of disease (dimension of time) and continuity beyond the visits to one

specific health institution (dimension of place) (Unger et al. 2003b; World Health Organization 2008a). Good quality care strives to improve health, but also to enable or empower patients so that they are better able to master their own situation (Howie et al. 2000; van Olmen et al. 2010).

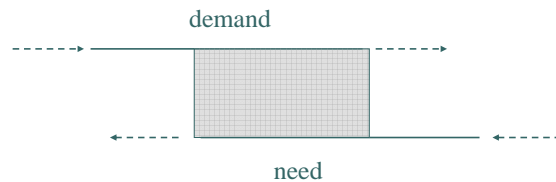
Quality is a determinant of the acceptability of care and thus of access. The multidimensional aspect of quality and the lack of a universal single yardstick result in assessment problems similar to that of access and coverage. The WHO indicators for quality assess the structure and processes that are assumed to lead to good quality of care. They assess infrastructural elements, such as capacity standards for basic and specific services, and personnel-related elements, measured by patient surveys and indicator lists. Processes to assure quality, such as quality assurance mechanisms, supportive management, appropriate funding mechanisms and a proper working environment are included (World Health Organization 2008b). Other instruments have been developed to assess the quality of patient care, usually focusing on specific aspects of quality, such as technical quality, appropriate referral, continuity of care or patient-centeredness. (Howie et al. 2000; Kruk et al. 2008; Starfield 2010).

Responsiveness

The original definition as proposed by WHO is ‘responsive to people's expectations, including safeguarding patient dignity, confidentiality and autonomy and being sensitive to the specific needs and vulnerabilities of all population groups’. In practice, the evaluation of this element has often been narrowed down to the measurement of people's satisfaction and client orientation, which includes elements such as prompt attention, amenities, access to social support and choice. The evaluation is usually done with questionnaires, for example those developed by the WHO (World Health Organization 2000).

In our model, we interpret responsiveness more broadly as being responsive to the needs and demands of the population and its different subpopulations and vulnerable groups, at individual level and community level. This definition relates to the overlap between (professionally defined) need, demand as expressed by patients and community, and supply as actually provided. It is not easy to develop a quantitative indicator for responsiveness. One could describe to what extent the package of care in a country meets the demand and needs, where a 'responsive' supply would preferentially cover 'felt needs' - i.e. where need and demand coincide.

Figure 3. Responsive supply starts from the overlap between demand and need



The concept of 'minimum package of care' has been used in the quality debate, whereby it is assumed that at each level of the health system and for each type of facility, such a package can be defined and implemented so as to provide a minimum of care and services of good quality. However, attempts for a universal definition of packages of care have been controversial. They often have been limited to maternal and child health care and health problems which are considered as global priorities (often infectious diseases with a global threat) (World Health Organization 2008a). Too often, this concept is viewed in a rigid way and the "minimum" in MPA has become the "maximum" package of activities.

We consider the package of activities as a dynamic notion, which should evolve in function of changing needs and demand. The definition of a package of care should take into account

technocratically defined health needs. This consists of priority interventions identified by experts and in our view should include at least curative care for common problems, care and follow-up for chronic patients, prevention and care for major at-risk groups (children under five and women in reproductive age) and care for medical, obstetrical and surgical emergencies. However, the package should at the same time be responsive to the broader demand of individual patients and the population for health care. The definition therefore starts from the overlap between the two and the package should aim at resolving most problems at the lowest possible level (Unger et al. 1995).

Values and principles

The three goals imply that HS are not mechanical structures to deliver health care, but that they are social institutions. This means that they are shaped by values and that they enforce values through their social structure and the inter-personal relationships that shape the social structure, including power relations (Freedman 2005; Gilson 2003). *Values* are moral standards of a person or a social group, the generally accepted or personally held judgement of what is valuable and important in life, whereas *principles* are general statements or tenets or primary assumptions forming the basis of a system of belief or of a chain of reasoning and thus not necessarily morally based (The New Shorter Oxford English Dictionary 1993).

In order to cover all underlying ideas that steer the health system and the behaviour of people, we prefer to use both terms in tandem. Examples of values and principles are health care as a right, participation, solidarity, freedom of choice, but also autonomy, security and protection; efficiency and effectiveness; maximization or optimization; individual and collective perspective; a cosmopolitan or national paradigm of social justice, equity and sustainability; and a vision of health as an economic or as a social good (Evans et al. 1990; Roberts et al. 2004b).

These values remain often implicit, yet influence the debates in health system policy-making and priority-setting to a considerable extent. Much depends on the ideology of the involved actors. The vision on health (care) as a social good emphasises the right to health(care) and accessibility to everybody according to need and even contribute to principles of greater equity in society. From the perspective of health as an economic good, the focus is on efficiency gains in organization or distribution, with a general preference for market mechanisms (with or without a correction of market failure).

Our perspective

Our approach to HS is strongly influenced by the values and principles that have been explicated by the GERM and the Tavistock group (Groupe d'Etude Pour une Reforme de la Medecine 1971; Smith et al. 1999). They include health care as a right for all, social justice, equity and solidarity, health as one among other valued goods that need to be assessed in its socio-economic and socio-cultural context, protection of the population balanced with responding to individual suffering, autonomy (the right to self-determination and ownership at national, local and individual level) balanced with providing safety, and security, effectiveness balanced with efficiency, sustainability, participation and negotiation between (groups in) the population and professionals, trust and accountability.

Since the implementation of these principles and values may have opposing effects, tensions are likely. An essential function of health system governance is therefore the seeking of a balance, taking into account the values and principles of actors in the system through a process of negotiation on the basis of fair processes. We highlight a number of balances that need to be struck.

As we discussed above, quality of care combines a number of attributes and a health system seeks to achieve a balance between those attributes. Effectiveness should be balanced against efficiency in order to deliver optimum quality of care while containing cost (Unger

et al. 2003b). This is also called rationalisation of care. Another balance is that between a reactive and proactive approach in health care. A reactive health system leaves the responsibility and initiative to the patient; a proactive approach means that the health system takes the initiative and responsibility to improve people's health. This paradigm is seen in disease control programmes (like tuberculosis, for instance), where health services go far to ensure that people take their medication.

Negotiation between population and professionals is influenced by power balances between these two groups, but also by the distribution of power within these groups.

Another balance is that between a cosmopolitan and a nationalist paradigm of social justice, equity and sustainability. During the first decades after Alma Ata, the dominant paradigm originally focused on the national level, but globalisation and other transitions brought up new tensions, such as those between national sovereignty and global responsibility. Should we aim for sustainability at local/national or at global level? A strong case could be made that for Low Income Countries (LIC), the desired result on the short and middle term (next decades) is not self-sufficiency in finances, but sustainable financing, from whichever source. In our view, global sustainable financing mechanisms and actors should respect national sovereignty as a central tenet of their policies and practices, as a health system, and the services it provides, needs to be responsive to local demand and needs and be based on locally defined priorities (Levine et al. 2009; Shah 2009).²

Other important tensions to be managed are those between short- and long-term goals and between focused and comprehensive approaches. A focused approach aims at rapidly reaching results in a particular field. Such selective approaches may be justified in some

² This does not imply that local communities and national governments should not contribute their share of the effort, as is stated in the Abuja targets. Local financing may contribute to shared responsibilities of people at local level.

resource-poor settings with particularly high burden of disease, such as malaria or HIV/AIDS. As we will discuss in the last chapter, such selective rapid impact strategies have serious drawbacks.

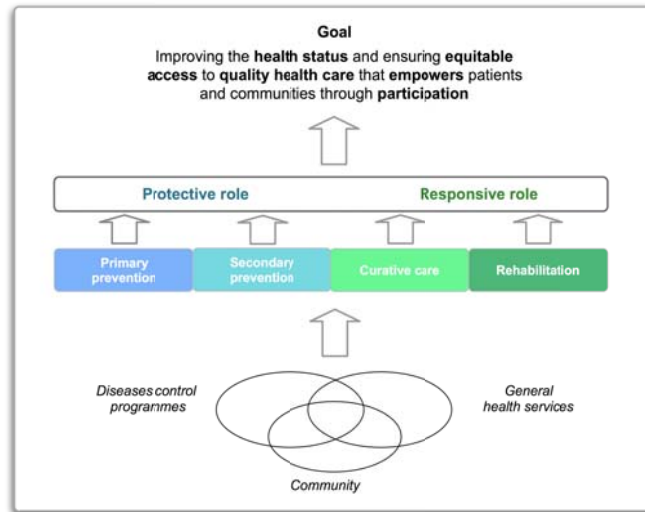
Whichever tensions and values are at stake, we believe that the values and their relative weight are unique in each situation and that they are paramount in the determination of goals and outcomes. The choices and priority setting should take place at the most appropriate level (central or local), and take into account technical criteria as well as the values that underlie the HS and society at large.

Service delivery

The delivery of services can be considered as one of the central elements of a health care system, transforming inputs and resources into outputs. In other words, we consider health service delivery as the process through which providers, health facilities, health programmes and policies are coordinated and implemented so as to reach the desired outcomes and goals of the health system.

For the protective and the responsive roles of the health system, a range of **functions** needs to be performed, from primary and secondary prevention to curative care and rehabilitation, as is illustrated in figure 4.

Figure 4. The roles and functions in a health system and the contribution of different groups and organizations to these goals (Marchal et al. 2011)



This means that a wide set of activities needs to be organised, ranging from focused activities (e.g. chlorination of water or tetanus vaccination) to general services (e.g. hospitalisation at the district level). In practice, these activities are grouped into packages and organized through different *delivery platforms* (Marchal et al. 2011).

Many different types of *actors and organizations* are involved in the delivery of health services. In essence, health care is delivered at the interface with the population. This includes the provider-patient interaction and the interaction between a programme and a community. The boundaries between providers and population are thus not very strict: the population is a producer of health as much as a user of care. Here, we focus on the professional side of supply. The role of the population will be elaborated later.

Further clarification is needed with regard to the word 'health service', which in the literature refers both to the organization that

supplies care (as in the UK's *National Health Service* - NHS) and to the specific product that is delivered (as in health service delivery). We use the word 'service' to denote the products of provision. The term includes general health care activities; disease control interventions and population-based activities. We use 'health facilities' to denote the organizations that provide health services.

Health services and delivery platforms

Health services can be classified along different characteristics. Economic classifications use the degree to which health services are transaction-intensive (how much professional input is needed); the degree to which they are discretionary (similar for everybody or customised to the individual); and the level of information asymmetry that is at play (to what extent are both parties equally able to judge the service in terms of quality and appropriateness). In this view, individual-oriented clinical care is considered to be transaction intensive, discretionary and having a high degree of information asymmetry. Immunisation might be transaction-intensive but is less discretionary and involves relatively little information asymmetry {World Bank 2004 665/id}. Other criteria for classification are the need for permanent provision or the possibility for intermittent scheduling, and the focus on individuals/families or on the total population (Boussery et al. 2011; Van Damme et al. 2008).

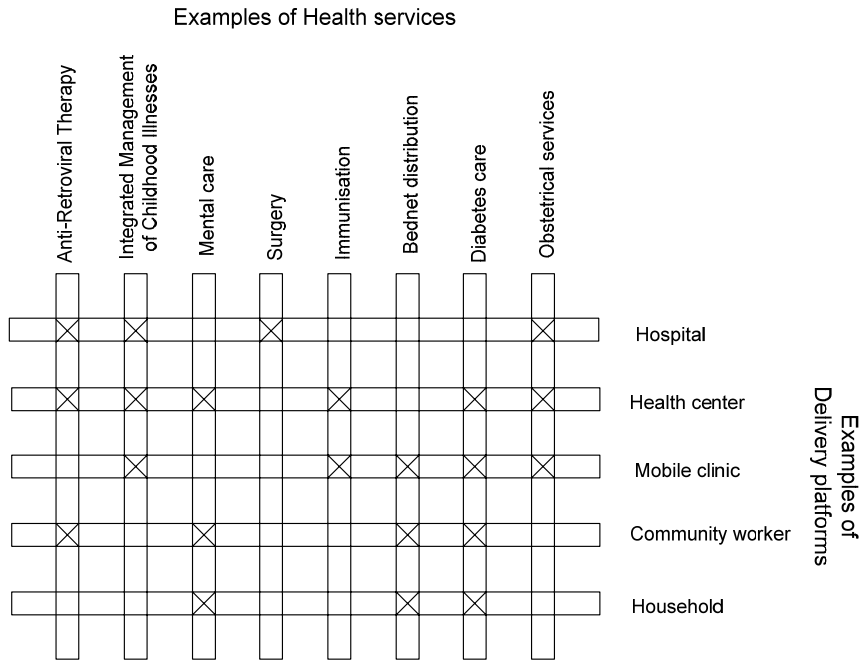
Health services can be delivered to the population (and, in some cases, by the population) via a variety of channels. Examples are different types of health facilities providing health services (such as clinics, health posts, health centres, and district hospitals), other entities (such as mobile teams, community health workers, vaccination campaign teams, etc.), but also outlets for health-related goods (such as pharmacies, informal drug outlets, and mobile drug peddlers).

These modes of service delivery can be classified in a variety of ways. Categories include family-oriented community-based services; population-oriented schedulable services; individual-oriented clinical

services at different levels (primary level, first referral level and second referral level). We use the term *delivery platforms* to denote the modalities of organization of service delivery (Van Damme et al. 2010). Some services may be provided through delivery platforms that are partly or completely outside the health system. Residual insecticide spraying, for instance, is done outside the health system; bed nets are delivered partly via health system delivery platforms (health centres, drug outlets) but also in supermarkets. At the same time, people will come to health care providers with problems that are not part of the priorities set by planners. Providers will thus provide services in response to this demand. The result is represented by the matrix-like configuration of figure 5.

The choice of platforms for providing specific services depends on the nature of the service, the capacity of existing platforms and context factors such as regulation and legislation. For a particular health service, one can thus select several delivery platforms that should be used. We visualised some examples in figure 5.

Figure 5. Delivery platforms for various health services



In practice, services are often ‘bundled’. Tetanus vaccination of neonates is meshed into the immunisation programme, which itself is part of the policies for care for children under the age of 5 years. Providing surgical care is part of the package of services of hospitals, which are usually planned at the national level of the health system and part of the national policy on hospitals (Marchal et al. 2011).

‘Integration’ is another way to look at services. In the public health literature, the term is used in many ways. It is often used to describe the extent to which Disease Control Programme (DCP) activities are interacting with the general services of a health system. Some frameworks describe integration at national level (Atun et al. 2010),

others at the operational level of health service delivery (Coulibaly et al. 2008). Often, 'integration of disease control activities into general health services' is reduced to describe the configuration of services and delivery platforms as visualized in Figure 5. The choice of integrating services in one delivery platform depends on factors like the added value of bundling different services, the possibility to standardise and delegate activities, the capacity of a specific delivery platform and the capacity of the health system as such (Unger et al. 2003a). When integrating DCP into general health services, the articulation between these different approaches needs to be optimised, so that duplication, distortion and imbalance take place as little as possible (Criel et al. 2004). The optimal configuration also depends on contextual issues (such as disease burden) and is path dependent. In the part on health systems strengthening, we will elaborate further how the interaction between the general and disease-specific elements of health systems can be optimised.

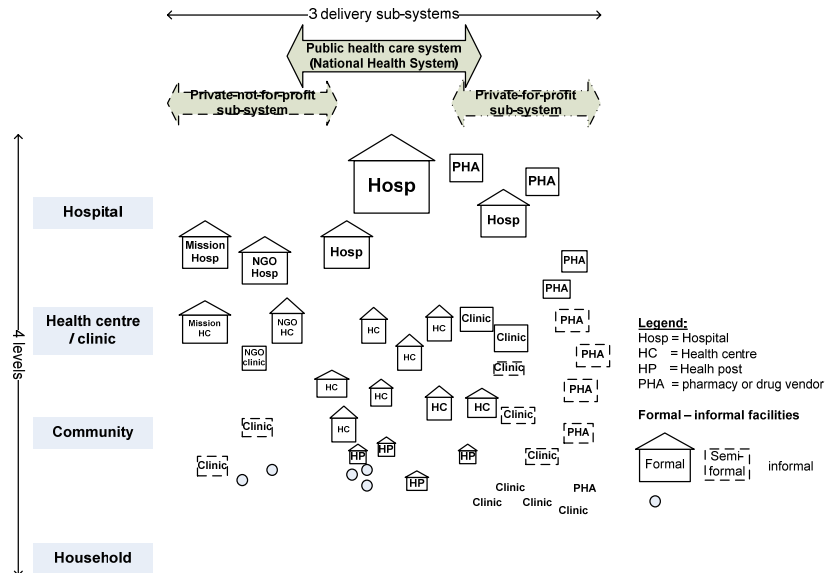
Providers of health services

The delivery platforms are configurations that include processes, structures and organizations and in which providers actually deliver the service. We can characterise health service providers as private or public, for-profit or not-for-profit, formal or informal, professional or non-professional, allopathic or traditional, remunerated or voluntary. Some consider the use of these categories as obsolete or counter-productive. Giusti et al. (1997), for instance, contest the importance of institutional identity (public or private), calling attention to the purpose of the organization and its actual service provision. In most health systems, providers make up a complex mix (often referred to as 'pluralistic health systems'), partly as a result of planning and organization and partly due to personal initiative or spontaneous evolution. In many LICs, the public system has historically been dominant, in some countries leading to a virtually monolithic health system. In others, a private (often faith-based) sub-system co-existed

with the public system. In most countries, an important shift took place in the last decades, due to the fast expansion of the Private For-Profit (PFP) sub-system and Non-Governmental Organizations (NGOs) that are part of the Private Not-For-Profit (PNFP) sector. The distinctions between these three sub-systems are often blurred, which explains in part the confusion regarding the public and private roles and realities in health systems. For Giusti et al. (1997), the key issue is not the legal or ownership status, but the degree to which a provider pursues a public finality.

To better understand how different providers deliver services, we focus now on the local health system-level. It is a subsystem of a national health system responsible for a defined population, and including a governance structure, all health facilities and all resources. Figure 6 shows the variety of health providers in such a local health system.

Figure 6. Mapping health care providers in a local health system (Source (Van Damme et al. 2010)



The hypothetical local health system in this figure has a ‘backbone’ public health care system with hospitals, health centres, health posts and community health workers. The PNF sub-system is composed of mission and NGO hospitals, health centres and clinics as well as some semi-formal community clinics and community health workers. The PFP sub-system is dominated by drug vendors and clinics. The composition of this picture varies in function of the context. In sparsely populated, poor areas, there are often few formal health facilities and the gap might be filled with community health workers; in densely populated areas where the private sector can thrive, the number of private facilities and drug vendors can be very high.

The linkage with other elements of the health system

The effectiveness and efficiency of the output of the service delivery element are closely linked to all other elements in the health system.

The availability of **resources** and the organization of their use determine the possibilities for service delivery. The transaction intensity of many health services makes staff/personnel one of the scarcest resources in many HS. The more delivery can be simplified and standardised, for instance through task-delegation and rationalisation of drugs use, the higher the efficiency gains. However, not all tasks of health service delivery can be simplified, especially in clinical care, and there is a balance to be struck between simplification (standardisation) and a customised approach providing the capacity to respond to complex problems.

Governance in relation to the service delivery function of the health system is mainly delivered through the stewardship of providers that themselves organize health services in line with the desired outcomes and goals. The stewardship function is usually executed by a public authority, the influence of whom on the private sub-systems is variable. Coordination between the actors is important for maintaining a balanced delivery of services (Bloom et al. 2001). The different possibilities of steering are elaborated in the chapter on governance.

The linkage between health services and the **population** comprises many dimensions. Further below, we discuss the dual role of the population as users and producers of care. Here, we focus on trust. Trust between health providers on the one hand, and the population and patients on the other is a determinant and a consequence of the quality of care and influences the acceptability of health care providers. It shapes the health seeking behaviour of people. The behaviour of providers influences the level of trust of the population/patient. Also the institutional set-up of the health provider organization plays a role in how users perceive truthfulness, solidarity and fairness in the organization (Gilson et al. 2005).

General trust in health system is also influenced by the experiences with public services in general and trust in the wider public system.

Our perspectives on the organization of a local health system

Organization of health care delivery implies decisions about the services to be provided, the delivery platforms and the nature of the providers. These decisions depend on the characteristics of the burden of disease, the effectiveness of the interventions, the capacity of the health system and the mix of providers, etc. Apart from these technical criteria, both population and providers will have their own preferences. The organization of health care delivery is thus partly the result of political decision-making and planning, and partly the result of the choices and behaviour of the population and health care providers over time. Nevertheless, some principles for the optimal organization of a health system at local level can be identified.

A **local health system** (LHS) has a defined population, called the catchment population or the population of responsibility. The latter term implies that the authorities in the system have a responsibility for reaching outcomes and goals for the people in that area. Such a LHS functions best if it is organised as an integrated system: all actors are well coordinated so that there are no gaps in provision, not too many wasteful overlaps and an optimal flow of patients and information. As a result, the patient is helped at the most appropriate level. In order to ensure access, and to use all opportunities of contact between people and health services to deliver priority interventions, some overlap in delivery platforms may be needed.

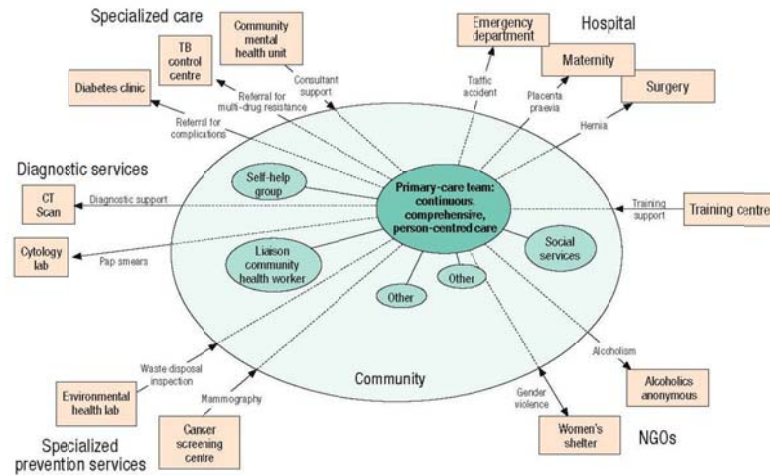
The following guidelines can help in developing and steering integrated local health systems: development of tiers that each provide a minimum package of services and activities; demarcate a well-defined population of responsibility; ensure legitimacy and accountability towards a population; and initiate planning on the basis on rational criteria and pragmatism with the aim to be responsive to the local needs and context (Unger et al. 1995).

In this view, the first line health services (health centres, general practices, clinics and the like) are at the very core of the local health system. At this level, people should be able to find an adequate solution for the majority of health problems they face. A provider at this level is ideally the first contact for the patient, and acts as a gatekeeper³ to other providers in the system and helping the patient to navigate through the system (see also WHR 2008 (World Health Organization 2008a). We call this hub the synthesis function, referring to the capacity of the generalist first line provider to make a 'synthesis' of people's health problems at any point in time in their journey through life.

Organization-wise, this calls for a first line that is decentralised (i.e. physically close to the people they serve), permanently accessible and staffed with versatile (teams of) health workers, capable of addressing a wide range of health problems. Other health services can then be organised around the first line facility. Specialised services requiring specialist expertise or technology are usually better organised at a more central level, and can sometimes be provided periodically rather than on a permanent basis.

³ The image that comes to mind with the use of the term 'gatekeeping' is usually one of 'keeping the gate closed'. However, a gatekeeper can also be imagined to be one who is knowledgeable about who and what is behind the gate, and who is therefore better able to direct visitors more efficiently.

Figure 7. The primary care provider as the hub in health service delivery
(Source (World Health Organization 2008a))



Population

The population are patients and users, creating a demand for health care, but they cannot only be viewed as a ‘target’ or ‘beneficiary’ of the health system. Individuals, groups and organizations, indeed, fulfil a number of roles that are linked to different aspects of their involvement in the health system. They are citizens with entitlements, rights and obligations. . They are funders of the health system, but also suppliers of care, and as such contribute to the functioning of the local health system (Frenk 2010). Bidirectional pathways of accountability therefore exist between citizens and health services.

People as producers of health (care), participation and empowerment

While planning and organization of HS is mostly done by health technocrats, the latter often also play a main role in the more political processes of priority-setting and decision-making. This may lead health programmes and services that are heavily influenced by these technocrats. Since some time now, the recognition of the contribution of people as producers of health and health care is increasing. In the past, it was often framed as the participation of the community in programmes. For instance, lay people were called upon to fulfil the role of community health workers or peer educators. However, this ignores the spontaneous activities of individuals and the dynamics of collective action in the community. Attention for self-help groups, patient organizations, peer-groups and informal care givers is slowly increasing, as is the recognition of individuals' own contributions to their personal health and well-being as a contribution to the health system on its own.

The concept of **participation** has been translated into a wide variety of approaches. These range from mobilising people to contribute to reaching targets, over consultation during decision-making processes, towards increasing capacity to recognize and act upon situations oneself (Rifkin 2003). The choice of approach depends on the issue at stake, the context and the perspective on the desired outcomes of the actor that aims at increasing participation. Since Alma Ata, Community Health Workers (CHW) and likewise cadres have been deployed, mostly on a voluntary basis, to be the link between professional services and the population. For two decades of lessening attention for the concept, community-based interventions have been receiving increasing attention and resources again, taking a less voluntary approach and considering them as a paid-for cadre complementary to health service based health workers (Boussery et al. 2011).

Empowerment at individual and community level is widely recognized as an important goal, because it contributes to reducing inequities and bringing about desired social change (Gilson et al. 2007). At community level, a strong community voice in relations with other actors in the health system, and especially when priorities are set, is important. At individual level, empowerment often means changing the relationship between patient and provider, whereby the latter becomes responsible *to* instead of *for* the patient. This implies the transformation of power relations and is likely to create resistance. Different approaches to empowerment are needed, directed at both the care supply and demand sides (van Olmen et al. 2010). Examples of successful interventions are providing patients with easy diagnostic materials and decision aids for use at home and telephonic helplines for providers and patients, to ask for medical advice.

Demand and health seeking behaviour

People are patients and/or users of health services. For services such as community-based prevention activities, they are actively approached by health workers (supply side), even if they can still decide not to engage. For most health services, the locus of decision-making is centred at the demand-side, meaning that the initiative and decision to make use of the health system is taken by the individual.

It is the responsibility of the planners and providers to make sure that the health system provides those services that respond to the needs and demands of the population (adequate supply - see responsiveness). But it is the population itself who, for the majority of services, decides whether to make use of these services and, if so, from which provider to get these services (**health seeking behaviour**). The demand for a particular service is related to the perceived (immediate) benefit by people and is generally low for preventive services and high for acute curative care. Patients seeking care make an informed choice between these different categories, especially if they imply different

kinds of providers. Patients and families⁴ usually make such choices on a pragmatic basis, with geographical and financial access as strong determinants of their choices, along with the reputation of a provider or a facility regarding the present health problem. Socio-cultural barriers or constraints often exist. For instance, the decision-making power of women in relation to health decision-making in the household is a well-known variable.

In pluralistic health systems, health seeking behaviour covers a wide range, often involving self-referral and discontinuation of treatment. This is often in sharp contrast with the health planner's logic, in which every health facility has a specific catchment area and patients are expected to be referred between facilities.

In an ideal situation, the intersection of needs, demand and supply is as large as possible. Most interventions in a health system, indeed, deal with carefully assessing the needs and adjustment of supply; others aim at influencing the demand side. As much as providers can be influenced in their behaviour, so can people seeking health care. Examples of mechanisms to influence the demand for health services and health seeking behaviour are the development of financial incentives (or barriers), voucher schemes, and awareness campaigns about health risks or information about provider characteristics.

Trust in the Health System

The trust that people have in the system as a whole and in health providers is a central element in the health system. Trust is a major determinant in people's decisions to make use of the health facilities and services offered in their neighbourhood.

⁴ The choice for health seeking is not always individual. For instance, in certain communities, the decision to send somebody to the hospital is made by a group of senior men in the household. Social influences thus also co-determine the actual behaviour of the individual patient.

Trust is a complex and layered issue. At personal level, trust in a provider is influenced by his/her technical competence, openness, concern and reliability. At institutional level, trust in a health care organization is influenced by the management practices and regulations, but also by the qualification of staff, quality control mechanisms, and ethical codes (Gilson 2003). Trust in the health system is influenced by the trust people place in public services: the perception of the population on how much voice they have in the organization of (public) services and how much they perceive the system is trying to be accountable and responsive (e.g. corruption-public services)

In our vision, offering care in a flexible and dynamic response to people's felt needs is a crucial step in building trust. Ensuring quality of care and services is a consequent step to maintain trust. . The offer of accessible, acceptable and effective curative care is paramount because it constitutes the much needed springboard to engage with people and making them aware of - and accept - the need to use preventive services, for which the demand is often limited. A relationship of trust also constitutes the necessary foundation for people to understand that 'not everything is possible' and there is a need to manage scarce resources.

Context

The context of a health system is made up of actors (agency) and structures. We will discuss the actors in the health system in a separate chapter and focus here on the structural factors that shape and influence the health system.

Because HS are essentially open systems, they are shaped and influenced by wider societal change. They are social institutions that reflect the society in which they are embedded. Interaction with the environment involves interaction with and adaptation to social, economic, technological, cultural, political, regulatory and environmental developments and transitions over time.

This has several consequences. First, every country has a health system that reflects its political decision-making; it is thus a product of a particular historical evolution (path-dependency) (Riley 2008). Second, there is a constant need for adaptation to new developments and transitions, such as an ever-evolving disease burden, new technologies, the changing expectations of patients and providers, increased availability of information through media and information communication and technology and the changing roles of the state in the health and social sectors.

The *policy context* of the health system can be analysed at different levels. Each level is intricately interwoven with other levels through power configurations and dynamics between international, national and local actors. National policies in low-income countries can be heavily influenced by the global financial and economic regime and policy context. Scanning the global context entails tracking changes in the global aid environment, global health agenda setting, and the role of major donors, international organizations and global civil society. Even at local level, the influence of global and national actors interferes with that of the local stewards, politicians and other stakeholders. This results in often dynamic configurations of actors involved in making health policies and designing specific health programmes that steer the health system that go beyond the local and national level.

The national context also encompasses the *national political system/*regime, the political administration, the organization of the public sector, the regulatory system and civil society. Coordination mechanisms such as inter-sectoral coordination between ministries, donor coordination or pooling mechanisms, and national civil society networks, need to be taken into account. One also needs to consider the administrative decentralisation and/or health sector reforms, because they directly affect the distribution of responsibilities and resources within the health system. Within the policy context, the ministry of finance is a key actor, through its decisive influence on

national resource allocation and expenditure. In most countries, the national civil service administration is another central player, having a great influence on health workforce policies of the public health system.

Also other sectors, such as education, sanitation and water supply, the organization of social security, etc. have an important influence on the outcomes and goals of the system. This is the explicit recognition of the role of other determinants of health in the goals and effects of the health system.

Leadership & Governance

'Governance' has received increasing attention in circles of health and development since 15 years, and many interpretations of the concept circulate. In the World Health Report 2000, WHO describes three health system goals: to respond to the legitimate expectations of the population, ensure fairness of contribution and ultimately, to improve health (World Health Organization 2000). Health system performance is seen as the result of the way the health system organises four key functions: stewardship, financing, service provision and resource generation. Stewardship is an oversight function: it influences the other functions and enables the attainment of the three goals. Stewardship is the responsibility of the government, usually through the Ministry of Health, although certain stewardship tasks may be delegated to other actors. For Travis and colleagues (2002), stewardship is almost synonymous with governance: "*stewards of a health system have a responsibility to ensure the health system operates according to governance principles*" (Travis et al. 2002).

We define governance as providing policy guidance to the whole health system; ensuring coordination of actors and regulation of different functions, levels and actors in the system; ensuring an optimal allocation of resources, and maintaining accountability towards all stakeholders.

For Reich, the term governance refers to the changed nature of the state (Reich 2002). The state is considered no longer to be the sole actor shaping health policy and the delivery of health services. In practice, the state's power is often undercut by forces at multiple levels. From above, the state is constrained by agreements with international organizations and donors. In many low-income countries, macro-economic policies of deregulation and privatisation reduced the role of the state in the delivery of health services, compared to private for-profit and not-for-profit health service delivery. The state has also reshaped itself through decentralisation processes, devolving responsibility for the delivery of health services to local government structures. As a result, a variety of players, including market and civil society actors, have an influence on governance. We assign a central role to government actors in the steering of the health system, as government has the delegated authority to deliver services on behalf of its citizens. Citizens are entitled to public service delivery as part of the social contract between government and its citizens. In this view, government should play a mediating role between all stakeholders to promote equity, efficiency and sustainability of the health system and in general ensure the public finality of the health system. Theoretically, such actors have a public mandate and may be exposed to public scrutiny and elections. It is part of its mandate to protect citizens from ill health and its social and financial consequences.

In practice, the changed nature of the state has given rise to a system of multi-level governance, wherein responsibility for governing is shared between different state actors, at central level (Ministry level) and local levels (e.g. regional health directorate, district health management team and local government). Both levels need to possess the necessary competences to steer the public, private and not-for-profit sectors.

Several tools to measure governance have been developed. WHO identified two types of indicators for measuring governance: rules-based indicators assess the capability in place, while outcome-based

indicators assess the performance on the basis of the experience of relevant stakeholders. WHO proposed a number of core indicators and a composite governance policy index (World Health Organization 2008b).

HS and health facilities have the responsibility to be accountable towards their population. Public health providers are accountable to their patients for the services that they provide (or do not provide). Since this relationship is characterised by a high degree of information asymmetry and power imbalance, systems to correct this imbalance and to enable the patients to claim their rights are needed. However, the accountability of health providers goes beyond individual patients; health care organizations are supposed to be accountable to the population they serve. Various structures exist to create channels for accountability. The classical participation structures such as health committees have had varying degrees of success. The introduction of third party payer arrangements resulted in new institutional mechanisms for control, which might include effective procedures for users to hold the provider accountable. Information and communication technology offers a great potential to increase the information to users and the voice of users towards health providers.

Policy guidance

The increase in stakeholders at all levels and in different functions in many HS demands a strong capacity in the ministry of health, its decentralised structures and local governments to take leadership and to steer pluralistic and fragmented HS towards reaching their goals. Effective governance entails making explicit how priorities and changes are negotiated and what the guiding values and principles in the health system are. It requires strategic vision, technical knowledge and information, political and negotiation skills, and the consideration of values & principles, but also the participation and involvement of multiple stakeholders through transparent processes.

Coordination and regulation

As in other sectors, regulation is a major instrument for governing the health sector (Hanson et al. 2009). We conceptualise instruments of regulation as going beyond rules, laws, guidelines and their enforcement, and to include professional and ethical rules and norms, and any kind of incentives (Mills et al. 2006). The most basic classification of regulation mechanisms is that of sticks, carrots and sermons, referring to command and control, incentives and persuasion (Kegels 1999). At national level, ministries design the laws and regulations to which actors in the health sector should comply. The enforcement of regulation is often decentralised to the district level.

In the present day pluralistic health landscape of many countries, the need for coordination ('soft power') becomes another important instrument for governing the health sector. State actors, at both central and peripheral levels, need to take up leadership of coordination mechanisms to ensure inter-sectoral coordination and optimising health service delivery through collaboration between public, private for-profit and not-for-profit sectors. Coordination implies to have an overview of all the important stakeholders and to involve them in decision-making and implementation when needed.

Coordination at national level is mostly needed when new policies are being developed. At the level of the local health system - the 'district' in many (low income) countries - and in some cases at the regional level, there is an important coordinating role for the teams heading that system. District management teams indeed have to handle the complex task of organising the health services and the health care on their territory in an efficient and effective manner, in line with national health policies, but also taking into account the specific needs and demand coming from the local communities. In that respect, the 'district' is the structure where top-down and bottom-up planning should meet and be translated in responsive health care organization. It is the task of district teams to streamline and adapt to

their context the different policies coming from above - not in the least the policies and activities of vertical programmes - and to ensure that their planning takes into account local needs.

Accountability

The 'essence' of accountability consists of having the obligation to answer questions regarding one's decisions or actions (Brinkerhoff 2003) The health system should be accountable to the population, i.e. be answerable for its actions and the consequences of its actions. Accountability plays at different levels, from the individual provider towards the patient and from the ministry of health towards the overall population. At that most central level, accountability is greatly determined by the institutional arrangements that are in place. It is influenced by the rule of law, the presence of free press, transparency of decision-making, availability of information, the involvement of civil society and population representatives, and the level of corruption.

Accountability should be seen as a two-way relationship. Health service organizations are the agents responsible for the delivery of health services on behalf of the citizens or principals. Health service users should be able to hold health service organizations to account through good access to information and the ability to sanction any wrongdoing (World Bank 2004).

At operational facility level, various mechanisms for accountability exist and these have been used with different degrees of success (Rifkin 2001). Institutional arrangements with a third party, for instance a health insurance organization, can increase the accountability of providers, depending on the model of organization (Criel et al. 2005). However, recurrent problems in ensuring the accountability between health facilities and their users are caused by the power differential and the information asymmetry, which hinder the capacity of populations to monitor providers, participate in decisions and, in general, claim their rights.

Financing

Financing involves the acquisition, the pooling and the allocation of financial resources in such a way that it effectively contributes to goals and outcomes. In essence, health financing needs to ensure access to services while protecting people against catastrophic health expenditure (World Health Organization 2008b). Health care financing modalities have a direct bearing on equity, efficiency and sustainability.

The Commission on Macroeconomics and Health estimates the cost of a core package of activities at around US\$40 per person per year, although analysis of health system performance shows that a number of countries are able to perform well with less (Riley 2008). National Health Accounts describe sources and allocation of funds at country level. Mechanisms of **funding** health care are tax-revenue, insurance premiums, user fees or grants. Sources of funding can be public (national government, bilateral or multilateral donors) or private (households, for-profit or non-profit organizations, employers). The 2001 Abuja Declaration set a target of 15% of overall government expenditure to be allocated to health in African countries. **Pooling** of funds means that available funds are managed in such a way that it allows risks to be shared. Tax-systems and insurance mechanisms are examples of pooling systems. The third function of health financing is to **allocate resources** to other elements in the health system. It includes decisions of which health care services need to be funded and how to steer the delivery of these services. This function is sometimes referred to as 'strategic purchasing'.

Since health financing always involves rationing, the decisions on priority-setting and allocation of resources have great implications, especially when resources are scarce (Palmer et al. 2004; Roberts et al. 2004a). There is thus a very important link between **governance and financing**. The organization of financing greatly influences the (financial) **access** to services. For instance, abolishing user fees in the public sector can contribute to increased access, if mechanisms are put

in place to ensure that health facilities dispose of enough resources to provide their services and if other barriers are tackled (Meessen et al. 2009).

During the last 30 years, the role of market mechanisms, both formal and informal, has been increasing in many countries. The government has an important role to correct such market failures in the health system and to redistribute resources among the population so that access to health care is available to all, according to their needs.

The way in which different health services are financed and **how providers are paid** influences directly what type of services are being delivered and how. The main mechanisms for payment are input-based (estimations based on history, on standards, on population needs, etc.) or output-based (estimation based on production, on targets, etc.). In practice, many payment systems are hybrids of input or output mechanisms.

Traditionally, the allocation to public health facilities has been based on the historically and population-based estimation of inputs that are needed. In the private market, the default mechanism is a fee for service mechanism, creating strong incentives to maximise the provision of these services. There is currently increasing attention for output-based financing, in which funding is allocated in function of performance and outputs of health care facilities (Meessen et al. 2007; Meessen et al. 2011b).

Assessment methods. Various indicators can be used to assess resource mobilisation, pooling and funding of health care (World Health Organization 2008b). Total health expenditure and government health expenditure are indicators for respectively the overall availability of funds and the government's commitment. The assessment of their sufficiency should take into account the estimates of finances necessary to ensure access to the country-specific package of services, but benchmarking with other countries with similar levels of GDP per head is possible. The ratio of household out-of-pocket payment for health to total health expenditure indicates the direct cost of health for households. In countries with widespread health

insurance, coverage (specifically poor/vulnerable groups) and packages of care that are covered need to be assessed. Other indicators give information on allocation of resources (e.g. expenditures on wages, on priority problems, by level of government) or on the capacity of financial management. The most widely used tool to monitor funding and spending in HSs are national health accounts (World Health Organization 2010).

Our perspective

The thinking on how health care should be financed in order to contribute to HS has evolved over time. There have been longstanding global debates about Bismarck and Beveridge systems, about contracting and the role of the private sector, about user fees and about the role of international donors. In this section, we highlight some important issues.

The prime responsibility for revenue collection is located at the national level, because it is linked with government accountability to the population. There is, however, a strong plea for global social responsibility and a longstanding commitment of the international community to contribute to the health financing of the basic package for those countries too poor to collect sufficient funds (Ooms et al. 2009). This plea has implications for the way one looks at sustainable financing.

Funding mechanisms should ensure equitable access to services and provide financial protection to citizens. This means that health services should be affordable, payment not being an obstacle. For many poor people this means that health services should be 'free at the point of delivery'. This implies a preference for prepayment by taxation, health insurance or a combination and pooling. Mechanisms to raise funds should contribute to equity and thus usually involve progressive collection mechanisms. These principles make user fees the least desirable option, since they are regressive, limit access to care

and provide no financial risk protection. If user fees exist, there should be arrangements for the protection of the poor.

We believe that in most contexts, the delivery of health care in publicly oriented health care organizations is crucial to ensure access. Allocation of funds should steer the organization of care and the behaviour of providers towards this public orientation. Whichever combination of mechanisms is chosen to fund health service organizations or individual providers, we take the following principles to be paramount: payment mechanisms should contribute to social justice and to continuity of care for patients, minimise administration cost, optimise sustainability of the system and allow for mechanisms of control.

Human Resources

Since most health services imply interpersonal contact, human resources are crucial to the health system. The term “Human Resources” (HR) is defined as to include all actors that are involved in health, including lay people, community actors and expert patients. We elaborated on the role of the population in another chapter. The “health workforce” is defined more narrowly as all people engaged in actions whose primary intent is to enhance health. This means primarily (para-)professionals.

The health workforce can only meaningfully contribute to the performance of the HS, if health workers are available, competent and performing up to standards (Van Dormael et al. 2005).

Availability. Health workers need to be available where needed in terms of the right absolute number of personnel, geographical distribution and skill-mix. The availability is determined by training capacity, recruitment policies and posting/distribution policies. In practice, a comprehensive health workforce policy integrates planning and organization of training, recruitment, remuneration and deployment. The HR policy needs to be adjusted to the evolving models of health care delivery (integration of disease control, task-

shifting, involvement of non-professionals), workloads (utilisation of services, burden of disease) and the evolution of the workforce (attraction and attrition) (Marchal et al. 2003;Narasimhan et al. 2004).

Competence. Effective health workers are competent in various domains. They master the technical knowledge and skills required to provide care of high quality, but also interpersonal skills and display a patient-centred and professional attitude. To ensure a competent health workforce, basic (para-)medical education should be complemented by (continuous) training and education. The process of socialisation is essential to the development of professionals. Competence can be stimulated by certification and accreditation procedures (Unger et al. 2004). Under certain conditions, professional associations can contribute to appropriate provider behaviour.

An effective health workforce requires not only personnel that is competent and well distributed in terms of numbers and skill mix, but also personnel that **performs up to standards**. This performance is not to be reduced to productivity (e.g. volume of patients treated, volume of deliveries), but also covers quality of services provided in terms of responsiveness, etc. (see criteria of quality of care).

Motivation and commitment are important determinants of health worker performance. Both are influenced by intrinsic personal drivers and external factors, such as management practices, (organizational) culture and societal values.

These three elements will lead to a well-performing workforce only if the work environment is enabling, a core task of management (Buttiens et al. 2004). Health service managers also need to deal with the tensions likely to arise as a result of competing priorities. In settings with severe shortages of health personnel, for instance, striving for sufficient numbers of health workers may compromise their competence levels.

HR management practices, such as remuneration modes and hierarchical command-and-control mechanisms, and the strength of professional ethics influence the behaviour of health workers. Sound personnel administration systems are best combined with

commitment eliciting HR management practices. In practice, bundles of practices that combine “carrots, sticks and sermons”, respectively referring to incentives (financial or non-financial), control and sanctions (through the institutional hierarchy or through legal systems) and values and ethics (such as professional codes or adherence to aspirational mission statements) work best. In general, health care provider behaviour is also determined by the relation with the patients and the population.

Assessment methods. In most countries, the available information on health workers is scarce and unreliable. It mostly covers the availability (health worker density) and distribution of health workers by occupation/specialisation, region, place of work and sex. In some countries, also the annual number of graduates of health professions educational institutions is collected – by level and field of education.

Our perspective

Recognising the different drivers of human behaviour, management processes of HR should put in place balanced bundles of incentives, bureaucratic mechanisms (rules and procedures) and professional drivers (Kegels 1999). Some (can) have an immediate effect, such as financial incentives, others a longer-term effect, such as career prospects depending on good performance. Incentive structures can be a mix of fixed remunerations with an (incentive-based) variable part on top of it. How this incentive-based part is arranged needs careful consideration, with specific attention for perverse effects on other health workers and services. The balance in this mix is prone to tensions (Kalk 2011; Meessen et al. 2011b; Unger et al. 2008).

In many HSs, there is a wide array of health service organizations, each with different incentive structures, such as disease control programmes, public health services, donor-supported projects, etc. This diversity leads to big differences across sub-systems and between rural and urban areas. It is one of the functions of governance to regulate incentives, so as to reduce imbalances.

Infrastructure and supplies

This element comprises the 'hardware' and includes the infrastructure (construction and maintenance) and the supply of pharmaceuticals, technologies and goods. By technologies, we understand medical technology such as the development of new drugs and diagnostics, but also other technologies that benefit the HS such as information and communication technology.

Infrastructure

Developing the infrastructure of a health system means assuring that there are enough health facilities within proper reach of the population. They should be well equipped, well maintained and adapted to the specifics of the services provided and the population making use of it. A usual target for geographical access is a primary care facility within 5 km or one hour's walk. For the first referral level, a hospital that offers surgery, obstetric surgery, internal medicine and paediatrics, a common target is one hospital per 100 000 people, but this is only a rough rule of thumb. In order to plan health services in a particular area, a coverage plan should be developed. This coverage plan should also consider the private facilities in the area and the health seeking patterns of people and involve negotiation with the population as important stakeholders (Unger et al. 1995).

Supply of medicines

This part focuses on the supply of essential medicines, because it is a crucial commodity in the health system. To ensure appropriate supply and use of essential medicines of assured quality is a major challenge in many HS, and what is said about medicines applies also to other medical supplies (vaccines, in vitro diagnostics, medical materials and devices, etc.) and technologies that are needed in a health system. Health system challenges with essential medicines can be classified

among four groups: 1) poor availability and supply; 2) poor quality; 3) poor financial or geographical access; and 4) poor prescription/use.

There are strong market failures, such as (a) the oligopolies of pharmaceutical companies in some groups of medicines (especially the ones most recently developed which are still under patent, like second line anti-retroviral drugs, new anti-cancer medicines, etc.), (b) the lack of quality-assured sources for supply of some old medicines particularly used in poor markets (e.g., many types of injectable penicilline) and (c) the strong information asymmetry between the patient and the prescribers on one hand and between the prescriber and the producer (industry) on the other hand. For universal access to quality medicines for all people in a health system, strong (governmental) regulatory oversight is needed on each and every step of medicines manufacturing and on import, export and distribution, both at national and international level (brokers and international distributors). In order to ensure it, the following functions are as important as challenging: developing national policies, standards, guidelines and regulations; developing and enforcing national standards and regulations for the production and the distribution of medicines, compliant with the international standards set by WHO; promoting affordability of medicines logistic systems and support for rational use (Laing et al. 2001).

National policies usually include the definition, regular update and enforcement of the list of essential medicines, defining which drugs should be available and dispensed within the health system, the definition of guidelines about the prescription of medicines, and the development and enforcement of a stringent regulatory supervision on the quality of all medicines (and active pharmaceutical ingredients) manufactured, imported and distributed in a given country, irrespectively of whether the channels are private or public ones. However, most LICs have weak and under resourced drug regulating authorities. The WHO estimates that “30 % of countries have inadequate medicines regulation or none at all (World Health Organization.Regional Office for Africa 2009). Investment at global

level is needed to strengthen national Drug Regulatory Authorities, to make quality information as transparent as possible, and to develop and enforce rules and regulations for procurement and distribution.

While quality depends on an appropriate regulatory supervision, in line with WHO criteria, the availability of quality essential medicines to a given population depends on the efficacy of the procurement and distribution system. In theory, a central supply system with an aggregation of orders at different levels results in efficiency gains, but the reality is that at different levels, many potential weak links can weaken the functioning of the total chain, such as stock management, haphazard ordering systems and slow distribution channels. Although a wide variety of supply chains leads to fragmentation and lack of overview, a limited number of parallel channels for supply is likely to guarantee continuous supply of specific medicines better than one single system, which explains the tendency of some disease control programmes or subsectors to set up parallel systems. The proliferation of parallel distribution channels of DCPs have been subject of intense debate recently, because they are said to threaten the sustainability of national distribution systems, decrease distribution efficacy and make it very difficult to get an overview of medicines within the health system. Besides these centralised systems, a great share of medicines is distributed via private wholesale firms, who supply many different customers.

In general, distribution follows two channels in LICs. Private companies on one hand, which often are subsidiaries of international groups, distribute medicines through the private channels of LIC, mainly privately owned pharmacies. The non-for-profit sector on the other hand (state owned central medical stores, confessionnal medicals stores, NGO's distribution channels, vertical programmes etc.) has the large share of the market of medicines in LICs. The presence of private pharmacies is often limited to urban areas, particularly to the capitals of developing countries, the rest of the country being mainly served by the non-profit sector. In terms of value (value of delivered medicines), the market share for the commercial sector might be

largest because of their higher average selling price, but the non-for-profit sector has the largest market share in volume (quantity of delivered medicines).

Ensuring financial access to quality essential medicines entails adequate information on quality and on prices, the capacity to follow (or fight) international trade agreements (in case of newly developed medicines still under monopoly), and the capacity to set and negotiate prices and mark-ups at the different steps of the national distribution system. This capacity influences the availability and access to medicines in the public sector.

As said above, to ensure the quality of medicines is the role of national drug regulatory authorities, working in line with standards set by the WHO. If DRAs are under-resourced or weak, poor-quality medicines can appear, either substandard medicines⁵ or even counterfeited⁶. Globalization has profoundly changed the context of production of essential medicines during the last twenty years, resulting in the move from many producers of both active pharmaceutical ingredients and finished products from developed countries (US and Europe) to Asia. Since most export to developing countries now comes from Asia, the assessments of the manufacturing sites and the traceability of these products may be very difficult, which entails an increased risk to get poor-quality medicines spread on the market on under-regulated countries, and to expose patients to often undetected risks (lack of efficacy of the therapy, or even direct toxicity).

⁵ A substandard medicine is a genuine (legal) medicine, produced by legitimate manufacturers, approved by the competent DRA and distributed through legal channels, but which does not meet quality specifications

⁶ A counterfeit medicine is one that is deliberately and fraudulently mislabelled with respect to identity and/or source. Counterfeiting can apply to both branded and generic products and counterfeit products may include products with the correct ingredients or with the wrong ingredients, without active ingredients, with insufficient active ingredient or with fake packaging.

To ensure quality throughout the whole supply chain in a poorly regulated environment, one needs to identify reliable producers, procurers and suppliers. The WHO has set up a pre-qualification system to identify producers, but this applies to a limited category of drugs, for instance for malaria, tuberculosis, HIV/AIDS and some reproductive medicine. There is no international mechanism of prequalification of other essential drugs, therefore it may be very difficult to identify sources of assured quality for these broad range of products. For example, penicillin's are considered as essential medicines by the WHO and still used in significant quantities in developing countries, but their production has been progressively abandoned in the developed world in favour of more recent and sophisticated antibiotics such as cephalosporins, quinolones, and macrolides. As a consequence, these products are not assessed neither by the WHO pre-qualification system nor by the drug regulating authorities in high-income countries. This leads to a large number of substandard medicines being available on the markets in lesser regulated countries (Caudron et al. 2008).

Once quality has been assured as well as affordability, rational prescription and use of medicines must be promoted. The first step in rationalising drug use is the development and use of an essential medicines list and the development of treatment guidelines. This essential medicine list should also steer the registration processes at country level. Pre-service and in-service training of providers for rational drug use is necessary, but not sufficient. At local and provider levels, systems of control, support and supervision should be built in to enforce and stimulate provider behaviour to rational prescription. One can think of audits, drug monitoring committees and regular meetings between the pharmaceutical and medical staff. On the demand side, awareness on correct use and risks of the irrational use of drugs can be increased, with the help of patients' organizations and public education.

These functions are strongly interlinked and measures to improve the situation will need to involve actions in all fields. For instance, the

set-up of a revolving drug fund starts from the need to ensure availability of drugs. Such a revolving mechanism is only affordable and thus sustainable if it is combined with selection of quality sources, rational prescription, accessible essential care and a functioning supply system (Unger et al. 1990).

There are few indicators to assess whether a health system performs well in ensuring proper infrastructure and supplies. An example of an indicator for pharmaceutical access is the percentage of facilities that have all tracer medicines and commodities in stock (at the day of visit, over the last three months) and the ratio of median local medicine price to international reference price (median price ratio) for a core list of drugs (World Health Organization 2008b). However, indicators are urgently needed to integrate “quality” and “access” parameters in these assessments.

Information & Knowledge

This element is an essential part of the ‘software’ of the health system. It includes all information collected in different ways for monitoring and evaluation and the knowledge that feeds into decision-making at different levels in the health system. Knowledge and information is needed for monitoring, evaluation and research; clinical decision-making; organizational management and planning; analysis of health trends; and communication. It relates to individual patient-provider interaction, health facility- and population-level decision-making. The management of knowledge includes capturing, sorting, crating, sharing and applying of knowledge among all stakeholders, to reach common objectives.

Health information comes from different data sources. Best known are the routine data collection and reporting systems run in health facilities (often called routine health information systems). Other sources are population surveys, census, civil registration, and (sentinel) surveillance systems. Action/operational research and individual patient records are additional sources of information for planners.

Also the value of tacit knowledge is increasingly being recognised. Often, these are iterative processes that serve different purposes, but are supposed to interact with and feed into each other.

What should be measured and provided is defined by a balance between comprehensiveness and pragmatism, functionality and workload. All information systems should be reliable, authoritative, useable, understandable and comparative. The Health Metrics Network identifies key components and standards of a country health information system (World Health Organization 2008c).

In our view, the priority of routine information systems should be to ensure their potential to contribute to sound decision making, limiting the scope to those data that are necessary for that purpose and keeping the procedures as simple as possible. Data needed for disease-specific programmes, general health services and different authorities (donors, government) are as much as possible integrated into one system of collecting and reporting (Unger et al. 1992; Unger et al. 2004). Additional information should be collected via other ways, such as surveys, research, etc.

The **processing** of knowledge and information is greatly helped by developments in technology. New communication and information technology has great potential to ease the processing, accessibility and use of information, both at system level and at individual patient record level. Electronic patient card systems can be stored and transferred to a referral centre. Analysis of data stored in a central database enables stratification of patients according to certain characteristics, which allows developing, for instance, a defaulters tracer and retrieval system. Of course, information and communication technology has also great potential for service delivery itself, e.g. telemedicine or cell phone-based systems to remind patients about their medication scheme. It should, however, be used with caution, given privacy issues and problems of ensuring accuracy of information (Kahn et al. 2010).

The collection and processing of data and information is but the first step in creating knowledge and understanding that can lead to

decisions and actions. However, a gap often looms between having information and knowing on one hand, and action on the other hand.

The know-do or implementation gap, is not unique to HS and is described in many other organizations and domains of life. In large organizations with multiple layers, knowledge, planning and implementation (practice) are located with different persons and the diffusion between layers, bottom-up as well as top-down, is often problematic. Knowledge needs to be shared in all directions, between people at operational level, mid-level managers and policy-makers, but also horizontally, with other people at similar levels in and outside the system (Parkhurst et al. 2010). Networks and communities of practice with people from different levels and from different organizations (research, policy, management and the field) and contexts can stimulate this exchange of knowledge and the barriers to implementation. The challenge therefore is to foster optimal collaboration on knowledge between all knowledge holders, developing a strategy covering all levels of the knowledge-value chain (Meessen et al. 2011a).

Health Systems Strengthening

Introduction

Health Systems Strengthening (HSS) means making an existing health system stronger by introducing changes. Any change in a complex system means a change in equilibriums. This may lead to gains for some actors or in some dimensions (e.g. in efficiency, effectiveness or equity), and losses for other others. The appreciation of gains and losses will depend on the perspective of the stakeholder. HSS interventions ideally change equilibriums in a manner acceptable to most stakeholders and in such a way that the gains outweigh the losses.

Strengthening a health system involves two major questions: what needs to be done and how to do it? The preceding part of this book dealt mainly with ‘*what*’, explaining the essential components of a health system and their dimensions. For each component, a number of capacities or functions that are needed to ensure its functioning can be listed. Numerous publications focus on strengthening of individual components of a health system, focusing on these specific capacities (for instance how to strengthen the health workforce information system or the drug quality monitoring system). However, strengthening individual components does not guarantee overall strengthening of a health system: given the complexity of a HSS, changes in one component may well affect other components in a positive or negative manner.

In this chapter, we first focus on the *process* of HSS to identify some principles for HSS. In a second part, we illustrate these principles by developing scenarios of HSS by Global Health Initiatives and Disease Control Programmes.

Process of and principles for health systems strengthening

Any HSS intervention is perhaps best conceived as a continuous development in four phases that are not always easy to separate: 1) problem analysis, 2) stakeholder analysis, 3) prioritisation and 4) coordination of interventions.

Phase 1 is made up by a *root cause analysis of problems*, for which our framework can be a tool. While such an analysis of low performance of a health system often tends to focus on the financial resources or issues with organization and management, the causes of low performance are often of a more structural nature. *Resource problems* can be differentiated in inadequate funding, unbalanced and/or inefficient allocation, and inefficient use of financial resources. *Organizational problems* deal with problems of management and coordination of actors, distribution of resources and of operational implementation of health care programmes and policies. *Structural issues* are of a more wicked nature, having to do with institutional arrangements and issues at sectoral or trans-sectoral level, such as the influence of macro-economic policy on wage ceilings in the public sector, or economic and social policies that affect purchasing power of the population. Not surprisingly, many health system problems have *entwined roots* at structural, funding and organizational level. Low performance of the health workforce, for instance, may be related not only to staff deficits due to inadequate retention or distribution policies within the MOH, but also to training issues (falling under the Ministry of Education) or remuneration ceilings imposed on the civil service by the Ministry of Finance. A thorough analysis of causes and linkages between problems that is as participative and transparent as possible will facilitate the process of change, because it allows engaging stakeholders in a dialogue towards a common ground for action.

Once root causes have been mapped, the actors who should be involved in the HSS intervention need to be identified. To this end, a participatory stakeholder analysis can be carried out (phase 2). This involves mapping of the relevant actors, an analysis of the power and

interests of these actors in relation to the issues at stake and of the relations between them.

Identification of the stakeholders allows moving to the next phase. The changes initiated by any HSS intervention are likely to affect the existing power relations and distribution of resources. Apart from this, many interventions require adaptations in organizational structure and/or behaviour. This often leads to resistance to change and tensions between actors. In such cases where diverging interests lead to conflictual priority setting, the process of setting priorities may be made as fair as possible (Daniels 2000; Daniels et al. 2000).

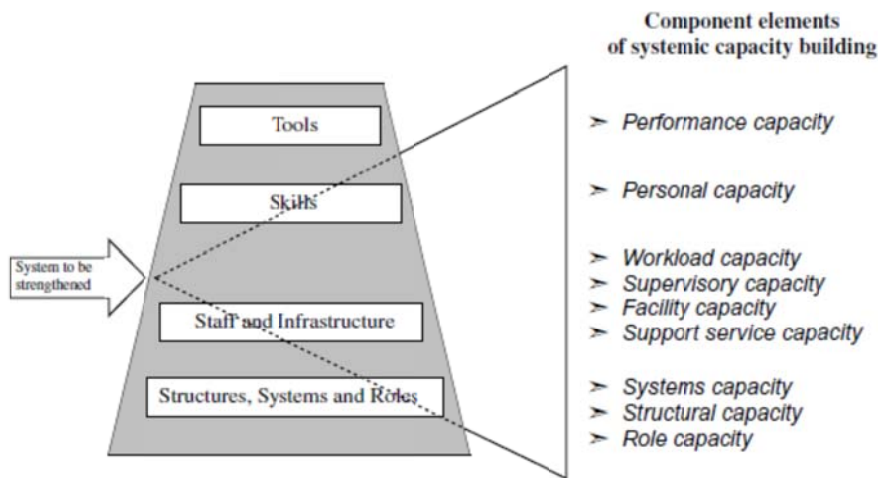
The steering of this process is a central element of the governance function. This, indeed, encompasses the coordination, the interaction and negotiation between actors and the creation of mechanisms for priority setting. Through ensuring the fairness of the process, chances of aligning the actors towards the overall goals and values may increase.

A framework to identify and guide interventions

When resources are put in a health system to strengthen it, this system needs to have the capacity to transform these inputs into (structural) changes that strengthen the system, which has also been termed the 'absorption capacity' of the system. In weak health systems, the more technical capacities that are merely a matter of resources can probably be strengthened relatively easily, because there is an overall shortage (Potter et al. 2004). But the influx of large external input into a health system, especially if being earmarked, can easily disrupt the internal dynamics. Potter and Brough provide a useful framework (figure 8) that can be used in Phase 1 and 3, as it helps both for analysing and planning HSS interventions. They distinguish a hierarchy of components in which the less tangible, partly socio-cultural, elements of institutions and roles are more difficult to build, but necessary to increase a health system's absorption capacity (Potter et al. 2004). In practice, many HSS interventions focus on improving tools and skills,

which is a relatively easy approach. While better tools and skills are often needed to improve performance of health services and programmes, the effect will be limited. Investing in staff and infrastructure may have a longer-lasting effect. However, the effects of HSS will be enduring only when changes in processes can be incorporated into the organizational structure and culture. In essence, system capacity rests on processes that continue through time and on structures that institutionalise such processes (Keugoung et al. 2011; Marchal et al. 2011). This leads to a paradox that stronger health systems might be easier to be strengthened.

Figure 8. Complexity dimensions of capacity building within a health system (Potter et al. 2004)



Some guiding principles

Although the context and path-dependency of each health system make developing and applying blueprints for HSS impossible, we

suggest a number of principles that can guide decision-making and action for HSS.

- a. In order to engage all actors in a health system in striving to reach the overarching goals in a process of alignment and coordination, dialogue is as essential as other steering mechanisms such as bureaucratic control measures and incentive structures. Such dialogue starts with the explicit recognition of each actors' interests and goals, but should move to reaching an acceptance of aims and goals, and priorities. Putting in place such processes requires 'stewards' with a strong long-term vision and the capacity to engage stakeholders and lead them into effective dialogue. Such stewards need not only to be capable but also legitimate.
- b. The health system dynamics model points to the importance of the central axis of the governance function, the health workforce component and the service delivery component. Being the most visible components of the system and a prerogative for the well-functioning of many other elements of the system, the functions in the central axis often needs attention first.
- c. Strengthening the central axis is a long-term effort. It necessitates continuity in time of HSS processes and the creation of structures that ensure institutionalisation of sound processes.
- d. HSS entails a continuous interaction with and adaptation to context. Attention should be given to flexibility and the process of HSS should ensure that mechanisms are in place to learn and adapt.

Interaction between different parts of the health system: the contribution of disease-specific programmes to HSS

In the last decade, the Millennium Development Goals (MDGs), the identification of priority initiatives and the rise of global funding instruments in the form of Global Health Initiatives (GHIs) have resulted in additional resources and external support to specific disease control programmes (Richard et al. 2011a). At the same time, there is a wide acknowledgement that attaining the MDGs requires strong health systems.

This realization has resulted in the rise of HSS on the global health agenda (Samb et al. 2009). Most national health policy papers, disease control strategic plans, and donor strategies for the health sector nowadays, indeed, contain a section on HSS. However, the definitions of HSS vary widely and many approaches currently used by (global) control programmes are rather selective in nature, merely strengthening health system capacities that are critical for the disease-specific programmes (Marchal et al. 2009; Van Damme et al. 2011). In this part, we focus our attention to the interaction between disease-specific and general care components of the health system and how their interactions can be improved.

As discussed above, an effective health system implies that both disease-specific health outcomes and global health status improvement are pursued simultaneously. This means that a wide set of activities needs to be organised to cover the protective and the responsive role of the health system. In practice, these activities are often grouped into packages and organized through different platforms, as we have discussed in the first part of this book. The balance between these delivery platforms and, in general, the interface between Disease Control Programmes (DCPs) and general health care organization, can easily become a zone of conflict due to competition for resources. The scarcer the resources (e.g. competent staff), the more intense the competition, not only between general health care organization and DCPs, but also among DCPs themselves (Marchal et al. 2011).

Partly as a result of competition, neglect or slower development of other parts of the system, DCPs in many national health systems in LICs have developed a special position and have become dominant entities in terms of funding or priority-setting power. In parallel, managers and funders of DCPs now generally acknowledge that effectiveness of their programmes requires sufficiently strong HS, and subsequently, more attention is now being given to how DCPs and health systems can interact to make both stronger.

DCPs can contribute to HSS in different ways. One perspective is to differentiate between stages in collaboration and interaction. DCPs and general health services can move from competition for resources to collaboration on common goals. This asks from both sides for incremental change in attitude and practices. Steps in this process are gaining a better awareness of the other's role and potential and of the differences in logic, the sharing of resources, and, finally, developing common coordination mechanisms (Van Damme et al. 2011).

Three scenarios for HSS by DCPs

We differentiate between 3 scenarios that can be used when choosing the HSS strategy of a DCP (Marchal et al. 2011). These scenarios do not aim to classify HSS efforts, but merely represent an incremental pathway.

'Do no harm'

In the most minimalistic scenario, DCP managers keep the focus on their own DCP goals - i.e. to maximise the reduction of the burden of disease - while avoiding negative consequences for the general health services. This scenario may have an indirect positive impact on existing health services: a reduction in disease burden may lead to a decreased workload for the general health services, although the opportunity cost of these efforts at different levels needs to be considered (Van Damme et al. 2011).

The type of potential negative effects of a disease control programme depend to a large extent on the configuration of platforms it uses. Disease control activities can be carried out through different configurations of delivery platforms, from parallel programmes to full integration. In the latter case, sufficient resources should be brought in to avoid drawing resources and personnel away from general health services ~ unless there is sufficient spare local capacity. Salary scales for DCP personnel should be as close as possible to other existing scales (like those of the Ministry of Health) to avoid internal brain drain, an approach that proved to be successful in Benin (Gbangbadthoré et al. 2006). Doing no harm also means not imposing additional burdens on existing services and systems. At national level, this means that replication in the sense of introducing parallel funding, planning and accounting cycles, and additional reporting and data information systems, needs to be avoided (World Health Organization 2006). At operational level, a 'do not harm' scenario will effectively improve the performance of the programme if all basic conditions are met. Indeed, in many cases, strengthened local capacities for programme-specific tasks will lead to effective programme delivery only if a conducive working environment is present. This may drive DCP to support the availability of diagnostic tools, drugs and equipment, and of transport means as well as maintenance of the general infrastructure. DCPs thus would ensure the working conditions of specific units or groups of personnel while avoiding undesired imbalances in remuneration and support (Marchal et al. 2011).

Selective health system strengthening

This scenario foresees strengthening those health system capacities that are required to successfully implement and support the DCP's objectives and that deliberately try to create positive 'spill-over' from their own activities to other services. It fits mainly the situation when DCP activities need to be partially or completely integrated in the general health services. This strategy may effectively attain short-term

gains on both sides, as long as absorption of any additional activity by the existing services is possible or made possible.

The starting point is a systematic assessment of the potential impact of the DCP on the rest of the system, in terms of (i) alignment with national and local priorities (OECD 2005), and (ii) demands on local health workers and infrastructure, both in the short and long term. For the latter, the capacity of the local district-level health system and the main problems these are facing need to be considered. A specific needs assessment carried out jointly by programme and local health service managers could be the first step to identify areas of potential conflict (Marchal et al. 2011).

An example is investing in the health workforce. In line with their narrow target and preference for rapid results, GHIs have long focused on providing programme-specific training to general health service staff: transfer of specific tools and improving skills through workshops and short courses. However, the per diems used to 'motivate' staff can easily create undesired competition among health workers and distract attention and effort from other core activities. Furthermore, these workshops often do not respond to actual training needs beyond the focus of the programme, and that may include general management skills, etc. Per diem policy in line with national procedures used by all actors diminishes undesired competition for health workers (Marchal et al. 2011; Van Damme et al. 2011). Using the programme's training as an opportunity to identify overall training needs and to reinforce non-programme specific capacities, especially management skills, is an important way to create a positive spill over. Spill over effects can also be stimulated by good collaboration on common delivery platforms. The antenatal care (ANC) clinic is a good example. High coverage of high quality ANC is not only needed for any safe motherhood programme to be effective, but also for HIV/AIDS programmes (prevention of mother to child transmission), certain malaria control programme activities (intermittent preventive malaria treatment in pregnancy), and for any vaccination programme. All actors involved, including DCP managers, could decide to bundle these different

priority interventions and invest in comprehensive and integrated high-quality state-of-the-art ANC. Joint work across programmes and general services to attempt reaching ‘universal ANC coverage’ could be an win-win deal. Another example is the strengthening of joint community outreach by DCP and general health care organization managers, or the linkage between community-based extension programmes to general health care organizations.

Such efforts to optimize existing delivery platforms require overcoming ‘cultural’ differences, sharing resources and, above all, a willingness to collaborate and share resources (Van Damme et al. 2011).

Comprehensive health system strengthening

Even though selective HSS can bring about quick wins for both programmes and general health services, sustainability of DCPs and long-term positive effects on the HS as a whole will ultimately depend on structural and institutional change. As shown by the framework of Potter et al. 2004, skills and capacities indeed need to take roots through institutionalisation. This scenario provides avenues for DCPs to contribute to this. Comprehensive strengthening of the health system requires coordinated efforts of all actors on the basis of a shared long-term vision that is translated into coherent policies. DCPs fully engaging in HSS would participate in joint comprehensive assessments and planning processes and be prepared to reassess their priority interventions in the view of overall health system goals in a process of alignment. In this approach, the contribution of a DCP to HSS is assessed not only by the proportion of their resources that are earmarked for it, but also by what is or can be done with these extra resources.

In practice, the six elements of a health system as defined by WHO can be strengthened: (i) leadership and governance, (ii) service delivery, (iii) health financing, (iv) health information systems, (v) essential medical products and technologies, and (vi) human resources for health (World Health Organization 2007). As stated before, we

argue that the most important capacities of health systems need most attention: the governance function, the health workforce component and the service delivery component. Strengthening the governance function calls for respecting the priorities set by national policymakers and operational-level managers through alignment with national priorities and harmonization between donor agencies and (global) programmes (OECD 2005) and openness for inter-sectorial collaboration. It also assumes that competent policymakers and service managers at the national as well as at the operational level are attracted and retained in service. For instance, it makes sense for GHIs to allocate funding to a national human resource development plan, including a salary increase of health workers, irrespective of the latter's involvement in the DCP programme.

An even wider approach to health system strengthening covers not only the health care delivery component of a health system, but also the participation and empowerment elements. (Thomas et al. 2007) provide some insights into how this could be achieved. Their frame consists of Managerial, Economic, Social and Human capacities (MESH) that make up the essential infrastructure at operational (health district) level. Working on these four capacities helps in transforming project/programme funding into actual health benefits for the community beyond health care. The management capacity covers financial, human resources and service management capacities, but also community engagement and shared decision-making (Unger et al. 1995). Economic capacity includes economic development to improve household income. The social capacity covers organization of the community as well as linkages between health care providers, community and government. Human capacity includes ensuring equitable deployment of competent health workers in the broad sense and contributing to salaries with real purchasing power.

Obviously, strengthening MESH requires strong collaboration between many actors and is likely to be a slow. It may, however, be the only way to contribute meaningfully to long-lasting development of both health systems and communities, which will reduce health risk

exposure as well as lower the impact of negative social determinants of health. Also in this case, conditions for success include a common mind set, overcoming cultural differences, a willingness to share resources, effective processes of negotiation and agreement and ultimately, establishing common oversight and coordination.

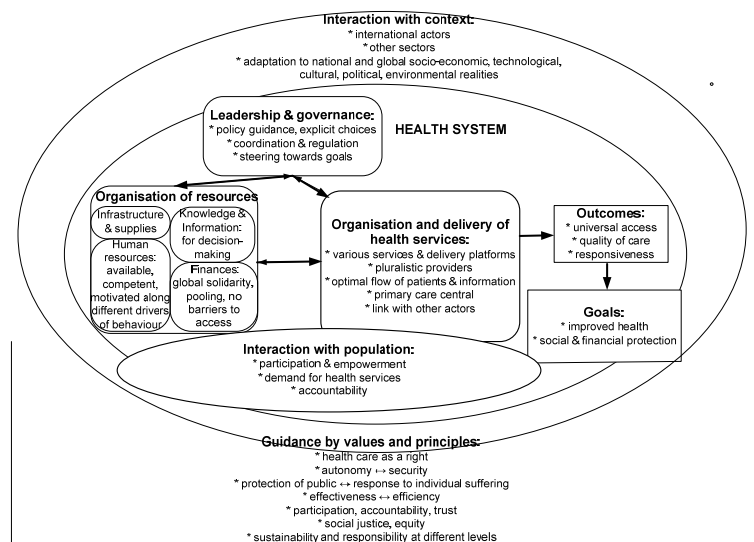
Using the dynamic health systems framework

The use of the dynamic health systems framework is quite straightforward when applying it on a national level, but it can be used in more selective ways. One can load the framework with specific values and principles so that it becomes normative; one can focus on different levels in the health system or on specific programs or problems. At the end of this part, three cases are briefly described, where the use of the framework is illustrated.

A normative perspective

At several places in the above text, we have made our values and perspectives explicit. We can use the generic version of the framework and 'load' it with those values and perspectives on how a health system should look like. In this way, our framework becomes normative.

Figure 9. Charging the dynamic framework with the authors' normative vision on health systems

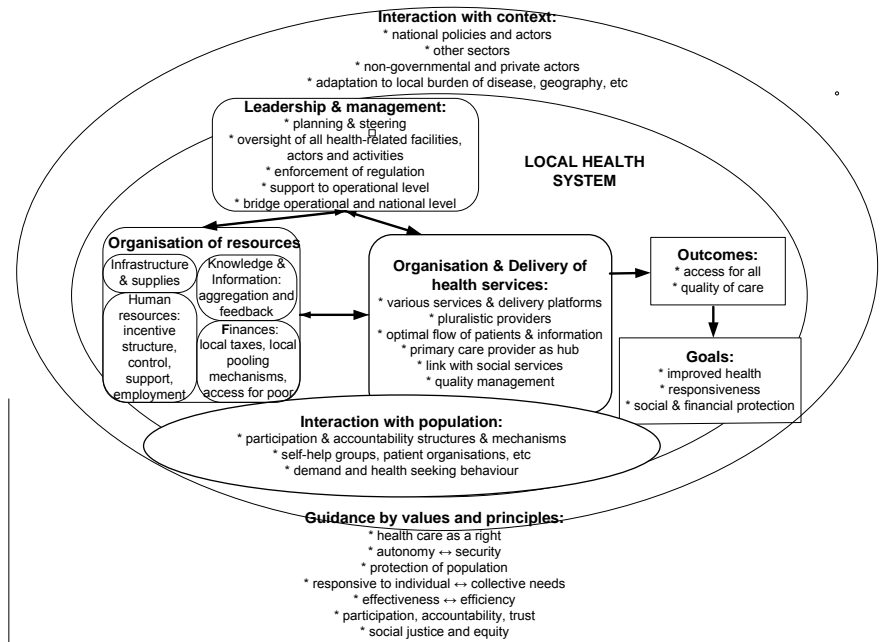


Analysing different levels of a health system

When analysing a health system, one can look at different levels: the patient-provider interactions, the organization of individual health facilities, a local network of health facilities, up to the national level. Since these levels are linked, the interactions between them are crucial, determined (in part) by the degree and type of decentralisation.

For a **local health system**, it could be done as shown by Figure 10.

Figure 10. Application of the dynamic framework to a local health system

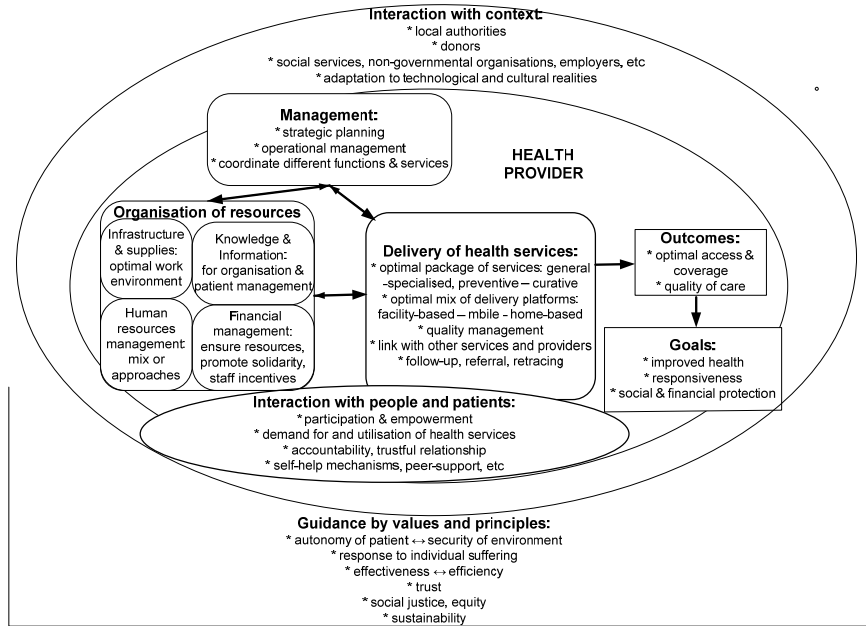


Governance at this level is a combination of leadership and management. It involves coordination of various actors who play overlapping and complementary roles, for example general health

services, disease control programmes, private health facilities and non-governmental organizations. A major task of the governing authority is to steer these actors in such a way that all people in the area have access to services of good quality, so that all actors maximise their contribution to wider health system outcomes and goals. In many health systems, curative services and pharmaceuticals are paid out-of-pocket, especially in the private sub-system, but also increasingly in public facilities, with (part of) the revenue being a direct financial incentive for the provider. Activities that are part of DCPs are often free at the point of delivery and the personnel of such programs is often more incentivised by their salaries or bonuses, combined with sticks and sermons. This diversity of incentive mechanisms for providers and accessibility of services for users leads to imbalances at the supply side (highly variable motivations among health workers and skewed delivery of services) and the demand side (health seeking behaviour). Differences are often especially big across sub-systems and between rural and urban areas, leading to fragmentation, at the cost of efficiency and equity. It is a major task and challenge for the governing authority to correct these imbalances. This means the design of regulation and incentive mechanisms that act upon the different drivers of human behaviour. The oversight function for all health-related facilities, actors and activities is quite crucial. This function is usually carried out by district health management teams or alike organizations (Segall 2003). The mandate for coordination is with public health authorities but other providers and actors should be involved. Too often, the district health team focuses on the management and support of public health facilities, and less or not at all on the regulation and coordination of the other providers. In order to improve the broader leadership function as explained above, the mandate, capacity and resources of this team need strengthening.

We can also give an example of how the framework can be applied at the level of a **single health facility**, e.g. a hospital.

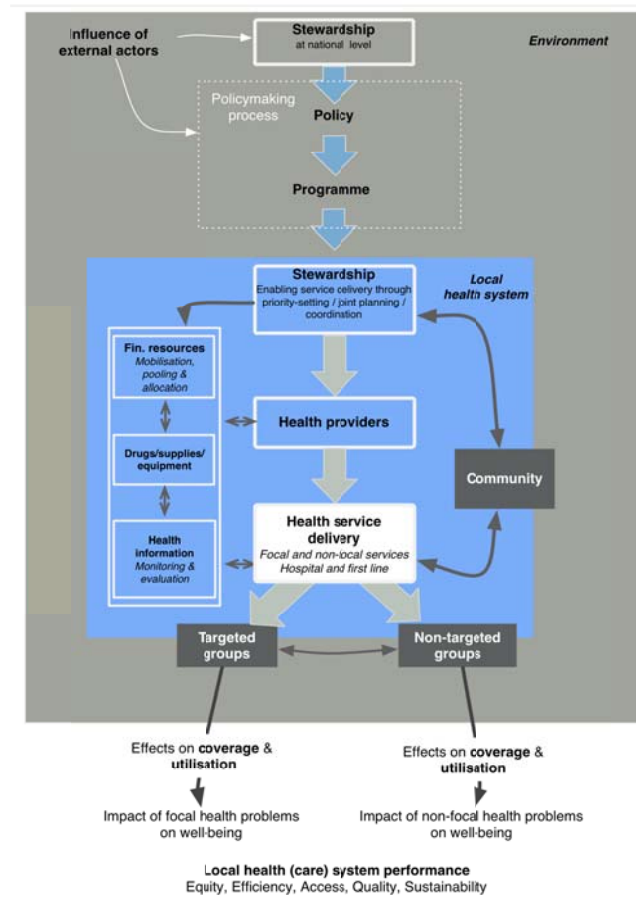
Figure 11. Application of the dynamic framework to a single health facility



Important functions at this level are those directly related to delivery of health services and can be summarized as management of the service organization. Most important functions are acquisition and allocation of resources, including adequate supplies and maintenance of infrastructure; management of staff in terms of time and competencies and in terms of incentive and motivation systems, including the creation of optimal working conditions. Information systems are important in order to keep an oversight of each individual patient with regards to follow-up, referral and retracing. At the level of governance, it is important to develop the dialogue and collaboration with the population, with lay organizations, and with other services/organizations (e.g. social workers, schools, sanitation services).

Of course, the linkages between different levels are crucial to ensure implementation of policies and bottom up initiatives to be heard and taken up. Another variation of our framework looks especially at those interactions that influence policy implementation at the operational level and calls for a dynamic approach to linking operational and central levels that includes both a top-down and bottom-up logic (Richard et al. 2011b).

Figure 12. The interaction between different levels of health systems actors (Richard et al. 2011b)



Mapping actors and their influences using the dynamic framework

So far, we have focused on the analysis of functions and their relations within the system, indicating that the balances between those functions make up the functioning of the system as a whole. In this way, the framework helps to clarify and simplify the understanding of health system. However, another dimension of the complex character is that HS are composed of social agents (people and their organizations). Actions by one actor often provoke reactions by other actors, leading to reactions, and so on. This adds to the relative unpredictability of processes in HS.

An analysis of a health system needs therefore to be complemented with an analysis of its actors. Here too, the framework can assist during the mapping phase. In order to get a view on all important actors (stakeholders), they can be classified following the different functions and sub-functions at the different levels in the HS. In the second phase, the actions and reactions upon certain issues of interest (a policy or any event occurring or being planned) of specific stakeholders can, pro- or retrospectively or in real time, be studied in more detail.

The following actors are some of the most important ones in most HS. Government actors are - at the central level - the MOH with all its units and departments, medical stores, inspectorates, and drug registration authorities, among others. At the local level: the - often called - district health teams, public health services (hospitals and health centres) and specific disease control services (if not integrated into the former ones). Not-for-profit actors in the health system are, for instance, professional and patient organizations, NGO and faith-based hospitals and pressure groups. For-profit actors are pharmaceutical companies, private health insurers, private health providers, etc.

Actors from other sectors have important influence on final health system outcomes. Education, sanitation and water supply and social services are some of the more important ones.

Health systems analysed with the dynamic framework

Three cases are described where the framework was used retrospectively or prospectively. Two of these were presented at the Geneva Health Forum 2010 (Hôpitaux Universitaires de Genève 2010).

Case 1. The development of quality first line care and universal access in Thailand (Pongsupap 2010)

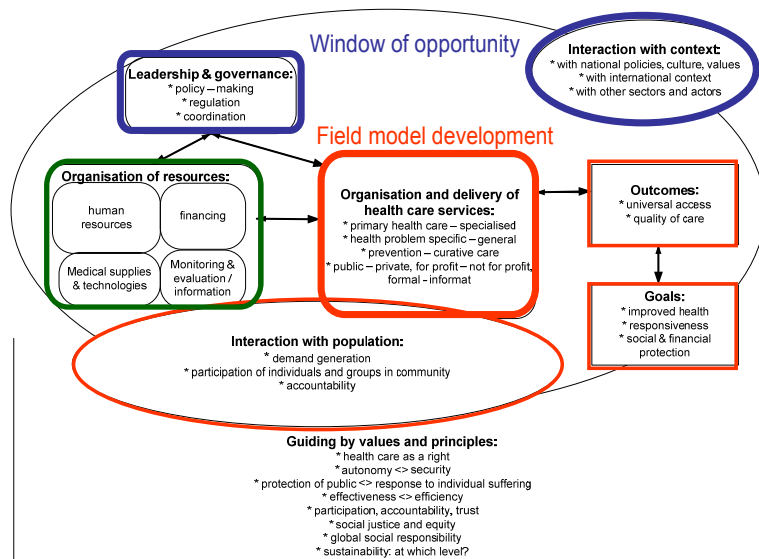
The framework is used to analyse retrospectively how the Thai government has developed its policy to reach universal access to quality care in the country⁷. The Thai health system had developed as an extensive network of public sector hospitals at district level throughout the country. From the early nineties on, this gradually changed. Actors in the ministry of health managed to develop strategies and interventions in different parts of the health system in a relatively short time span: to develop and scale-up a model for quality first line health services (service delivery); to develop a discipline of family medicine (human resources); and to develop a system for pooling and for funding health facilities that would enable financial access to the whole population (health financing). The movement started with pilot projects to develop delivery models for qualitative care at the first line. These projects proved successful and the model was gradually diffused to wider geographic areas at district level. A strategy was developed that included operational guidelines about health service organization and the involvement of the population. At national level, family medicine was introduced as a medical specialisation, which created a new cadre of motivated human resources to supply the newly developed delivery system. It took several

⁷ The aim of this case study is to illustrate the application of the use of the framework in analyzing processes and reforms in a HS. The authors present their personal impression of the developments in Thailand as they have experienced them from inside and nearby (Pongsupap 2010).

years before the enthusiasm for this new type of first line care was also shared by the population and by policy makers. This momentum came in 2001, when universal coverage of health care became an election theme. The economic growth in Thailand enabled the government to raise enough public funds to invest in the health system. The national universal coverage scheme was introduced together with a gatekeeper system and a central role for the first line. This led to a nation-wide increase of family practices according to the above model, resulting in universal access to quality of care.

The coherence of a number of interventions in different domains of the health system was supported by the bridging between bureaucrats, researchers and policy makers. The favourable economic and political context created the opportunities and political support for the reforms.

Figure 13. The health system elements that were involved in the development of quality first line care and universal access in Thailand (Pongsupap 2010)



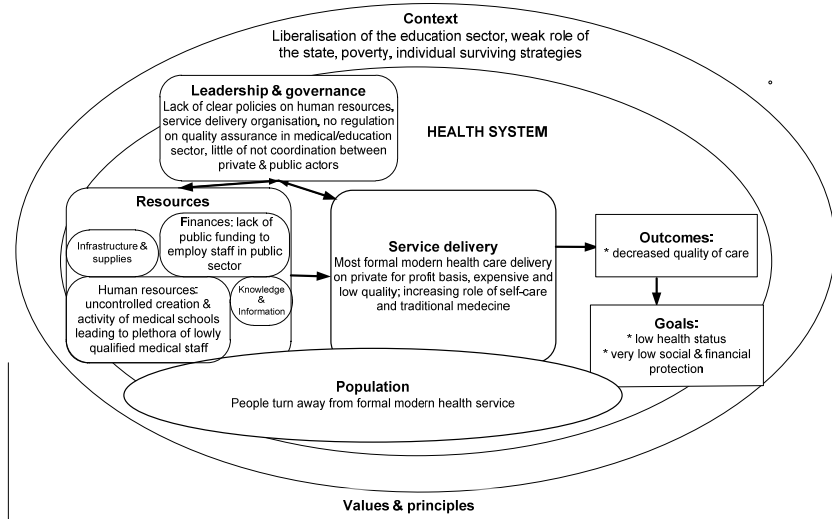
Case 2. The uncontrolled creation of medical schools in the Democratic Republic of Congo (Chenge et al. 2010b)

Until 1990, there were only three medical faculties in the whole Democratic Republic of Congo. Since then, there has been a boom of the supply side in the health and education sectors as the result of the economic liberalisation policies instituted by the government. The ministries of health and education did not have substantial influence in regulation (e.g. of quality), coordination of involved organisations, or in the financing mechanisms. The first effect was an explosive increase in medical faculties at private universities, which attracted huge numbers of students while often lacking adequate teaching facilities. In Katanga province, with a population of 2,5 million people, there are three universities, one of which has six decentralised branches at other locations. The number of graduates has increased exponentially. Initially, new graduates were absorbed by health facilities. This soon stopped and those not hired by the government often started a private practice, which boomed subsequently (Chenge et al. 2010a). Another consequence was that to cover staff cost, both public and private health facilities raised their prices. Utilisation rates of many of health facilities are low to very low. An evaluation of the medical care shows an increase in medical prescriptions, often without a rational basis.

This case illustrates how a policy of liberating the market for medical education can increase the number of health workers and of health care facilities and have unanticipated negative effects. If the aspect of quality control is neglected, then the competences of these health workers, their distribution and the skill mix are easily skewed and thus the quality and efficiency of health care delivery jeopardised. While in the DRC, the number of human resources has grown as a consequence of this policy, the funding of the health system did not. The lack of accompanying measures, such as funding to employ newly graduate doctors in the public system, pushed them to the private sector in a non-regulated manner. Similarly, the unregulated increase

of private facilities and the resulting increase of supply will not improve access to qualitative and affordable care, and may even lead to crowding out of public facilities and to increasingly induced demand (Chenge et al. 2010a).

Figure 14. An illustration of the consequences of uncontrolled creation of medical schools in a province in the Democratic Republic of Congo (Chenge et al. 2010b)



Case 3. Predicting Health System effects of a financial policy reform for Kenyan health services (Boussery 2010)

In 2004, the Kenyan MOH heavily reduced user fees in public first line health facilities to improve accessibility. This resulted in a modestly increased utilisation, but as a consequence of the reduced income, health services have faced increasing difficulties to remain functioning. A pilot project with direct funding of the first line health

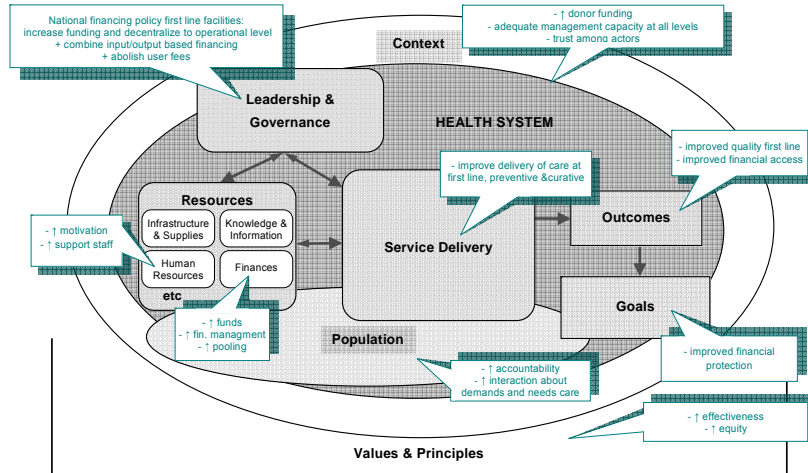
services, called the Health Facility Fund, was started in 2005 to improve this situation. It comprised of direct allocation of funds to individual facilities, on the basis of workload and facility type. The funds were managed by a health facility committee, consisting of people from the community and those in charge of the facility. A first evaluation of this pilot showed an overall positive effect on HS outcomes but also a number of negative results (Opwora et al. 2010). Based on this evaluation and on our personal assessment, we propose to improve the above strategy by adding two additional components: the total abolition of user fees at first line health services and a change in salary structure of staff using a mixed input/output base. In order to simulate the success of such a new policy, we use the health systems dynamics framework to study its effects on the different parts of the system (Boussery 2010)⁸.

The increase in resources will increase the possibilities for financial management inside the health facilities, provided that the capacity for financial management is developed. This can potentially create better working conditions and environment, for instance by hiring additional supportive staff and improving maintenance. A change in the remuneration structure induces the staff to work towards the targets established. Both targets and allocation should aim at a mix of curative and preventive activities. The involvement of representatives of the population in the facility management committee should increase accountability towards the population but also lead to a dialogue about the match between the felt needs and supply of services. The abolition of user fees and the compensation of the loss in income by donors or government is a shift towards increasing pooling of more resources thus leading to more equity between regions and health facilities and increased financial access for the population. This chain of effects is highly interdependent and will only work in a

⁸ This case is based on the dissertation of a master student in the ITM. The analysis and the policy proposal are under the responsibility of the author (Boussery 2010).

context in which there is adequate management capacity at all levels, trust between actors and an ensured flow of funds.

Figure 15. A model to predict the effects of a proposed financing policy for first line services (Boussery 2010)



Annex 1. Overview of different frameworks for health systems

Many frameworks have been developed to look at health system. Some are means to describe or analyse existing situations, others give guidelines where to go and are more prescriptive. Based on the overview of (Shakarishvili et al. 2010), and our own literature review, we list a number of illustrative and/or dominant frameworks, mostly in chronological order.

Comprehensive frameworks for national level

Many of these frameworks help to understand and improve financing and regulatory mechanisms.

- Actors framework. A rudimentary framework with four sets of actors (health care provider, population to be served, third party payer, government regulator) and a description of types of relationships between them (Evans 1981). (Green 1992) developed a framework that is based on a similar idea.
- (Kleczkowski et al. 1984) introduce a complicated model which focuses on health services. It describes many interrelated parts, but does not link with outcomes.
- (Roemer 1993) defines a health system as “the combination of resources, organization, financing and management that culminate in the delivery of health services to the population”. He describes a HS in five components: resource production, organization of programs, economic support, management, and delivery of services. He also offers a typology of HS, based on the extent to which governments intervene in the free market of private health services.

- (Frenk 1994) describes a health system as a set of relationships among five different actors (providers, population, state as collective mediator, organizations generating resources, other sectors contributing to health). These relationships lead to typologies in health care modalities. In a following article (Frenk 1995), he describes four levels of reform in HS: systemic, programmatic, instrumental and organizational reform.
- Londono and Frenk (1997) conceptualise the health system as relationships between populations and institutions. HS must perform four basic functions: financing, service delivery, modulation, and articulation. Modulation involves establishing, implementing, and monitoring fair and transparent rules and regulations, involving also strategic planning and guidance. Articulation reflects a continuum of functions that lie between financing and service delivery, and is distinct from policy formulation. It involves the organization and management of transactions between the population, financing agents, and providers. They propose a new organizational model to carry out these functions.
- (Mills et al. 2006) discuss early attempts of typology and classification of HS. They conceptualise HS in terms of four key functions (regulation, financing, resource allocation, service provision) and four key actors. Their framework depicts the interplay between these four functions and the major stakeholders involved: government or professional bodies responsible for regulation; the population (including patients); financing agents responsible for collecting and allocating funds; and service providers. They further note that regulation involves government control over individuals and organizations in order to address market failures or to achieve specific performance objectives (e.g. efficiency, equity, quality). In terms of resource allocation, their discussion focuses largely on the role of financing agents to contract with providers and the various payment mechanisms

used, rather than how these serve as incentives to influence provider behaviour. Finally, in service provision, they outline the various public and private providers involved.

- The performance framework (Murray et al. 2000; World Health Organization 2000) describes a health system as ‘includes all actors, institutions and resources whose primary intent is to improve population health in ways that are responsive to the populations served, and seeks to ensure a more equitable distribution of wealth across populations’. Functions of health system include improving population health and protection against the financial costs. (World Bank 2007) supports a similar view, defining HS in terms of functionality, defined by health service inputs (resource management); service provision (public and private); health financing (revenue collection, risk pooling, and strategic purchasing); and stewardship (oversight).
- The ‘reforms/control knob’ framework (Roberts et al. 2004b) describes relations between the structural health system components and their policy actions (control knobs) connected to the goals the system desires to achieve. Any change of control knob will affect access to or the supply and demand of health services, by influencing the behaviour of the people in their need and demand for health services; the behaviour of providers in the quantity and quality of the services they supply and how efficiently; and the costs and prices of health services. Every health system sets goals, influenced by the social values. Control knobs can be adjusted towards those goals, constrained and affected by the politics and political institutions of that country.
- The building blocks framework (World Health Organization 2007) and systems thinking framework (World Health Organization 2009). The former presents six building blocks as the health system’s main elements and processes. The systems thinking document proposes to look at the interactions between the blocks.

It is more a way to approach HSS interventions than a real framework as such. For each intervention, one is facilitated to make a conceptualisation that takes all the building blocks into account.

- The framework that is used in the Health Systems in Transition country profiles (Mossialos et al. 2007) allows a very detailed description of HS. It is appropriate to describe HS that are in a relatively advanced state of development and differentiation. Another framework with a slightly more focused scope is that of the OECD that describes in detail the mechanisms for health care delivery and financing and financial access (Paris et al. 2010).

Frameworks for sub-systems

A health system analysis can focus on different elements, resulting in frameworks for subsystems. Each element of the health system can be described as an (operational) sub-system in itself; interactions between actors of different elements can be analysed; and health systems can be looked at from different levels. We list a few examples of such sub-system frameworks to show the possible variety of focus.

- There are several frameworks that focus on the relationship between demand, supply and intermediary agencies (Cassels 1995; Hurst 1991) and on financing systems (Kutzin 2001). They often classify along the relative importance of insurance schemes, the amount of tax-funding and direct out-of-pocket payment.
- There are frameworks that focus on health care delivery or parts of it. Peters *et al.* have developed a framework to look at interventions to improve health service delivery (Peters et al. 2010). Their framework is comprehensive and takes into account many elements of the health system, but it focuses on service delivery. The (World Health Organization 2008a) has developed a comprehensive framework for primary health care that describes needed reforms in organization and policy, at different levels.

- We mention two frameworks for the organizational level. The multipolar framework describes the goals, the processes, the context and values and culture of an organization and how these processes are aligned (Sicotte et al. 1998). The organizational framework of Mintzberg looks more at the structure of an organization and the internal coordination processes. (Unger et al. 2000) have applied it to the public structure of a national health system.
- There are a number of frameworks for integration of DCPs and HSs. (Criel et al. 2004) developed a simple framework that focuses on delivery of care; Atun has developed more comprehensive frameworks that also take into account the other elements of the HS (Atun et al. 2010; Atun et al. 2009). Some proposed frameworks are linked to certain types of disease, e.g. (World Health Organization 2002) framework for chronic conditions.

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