



Which Health Systems for Disease Control?

How can Disease Control Programs Contribute to Health Systems Strengthening in Sub-Saharan Africa?

Wim Van Damme, Marjan Pirard,
Yibeltal Assefa, Josefien Van Olmen.

February – June 2010

Working paper N° 1

In the **Studies in Health Services Organisation and Policy**, the Department of Public Health, Institute of Tropical Medicine, Antwerp (ITM-A) publishes a series of monographs and a series of working papers. The editors are Guy Kegels, Vincent De Brouwere and Bart Criel.

The **Working Paper Series of the Studies in Health Services Organisation and Policy** aims to present innovative work in the domain of policy, management and organisation of health services and systems in low- and middle-income countries. It provides a platform to publish and disseminate empirical research and conceptual work that is not constrained by journal formats. All papers are peer reviewed.

The editorial team includes Kristof Decoster, Bruno Marchal, Werner Soors, Josefien van Olmen and Wim Van Damme. Please contact Rita Verlinden (rverlinden@itg.be) for more information.



**Working Paper Series of the Studies in Health Services Organisation and Policy
Nr. 1, 2011**

*Which health systems for disease control?
How can disease control programs contribute to health systems strengthening in Sub-Saharan Africa?*
June 2011

Wim Van Damme, Department of Public Health, Institute of Tropical Medicine, Antwerp (Belgium).
Nationalestraat 155, 2000 Antwerpen, Belgium, (wvdamme@itg.be).

Marjan Pirard, Department of Public Health, Institute of Tropical Medicine, Antwerp (Belgium).
Nationalestraat 155, 2000 Antwerpen, Belgium.

Yibetal Assefa, Department of Public Health, Institute of Tropical Medicine, Antwerp (Belgium).
Nationalestraat 155, 2000 Antwerpen, Belgium.

Josefien van Olmen, Department of Public Health, Institute of Tropical Medicine, Antwerp (Belgium).
Nationalestraat 155, 2000 Antwerpen, Belgium.

The views expressed by the authors of this document do not necessarily reflect the views of their institutions or the ITM-A.

This paper can be downloaded at www.itg.be/WPshsop

Table of Contents

Acknowledgements	4
Acronyms used	4
Executive summary	5
Key messages	6
1. Introduction	7
2. Understanding health systems and service delivery	10
<i>Health systems framework with 10 basic elements</i>	10
<i>Looking at a health system at different levels</i>	12
<i>Unpacking the “black box” of service delivery</i>	13
<i>Pluralistic health systems</i>	15
<i>Health systems in context</i>	18
3. Health systems assessment and the Anna Karenina principle	20
4. Way forward at country level	23
<i>Towards balanced health systems strengthening (HSS)</i>	23
<i>Possible DCP contributions to HSS</i>	26
<i>Strategic Options for DCP managers regarding HSS</i>	29
Annex: Priority interventions for MDGs	34
References	39
Additional documents used	44

Acknowledgements

In the process of writing this concept note, we received many useful contributions from colleagues and referees. We are especially thankful to Agnes Soucat and Maryse Pierre-Louis, as well as to the other participants at the World Bank meeting in Washington on May 3, 2010.

The following ITM colleagues gave useful inputs: Bart Criel, Guy Kegels, Sara Van Belle, Anne Buve, Katja Polman, Armand Van Deun, Umberto d'Alessandro, Epco Hasker, Marleen Boelaert, Basile Keugoung, Bruno Marchal, David Hercot, Bruno Meessen, Gorik Ooms and Luc Van Leemput, Geert Laleman, Monique Van Dormael.

We received many valuable comments from Peter Hill, Miti Katabaro, Renilde Van de Weerd, Rob Newman, Lucy Gilson, and anonymous reviewers.

We thank Katharina Hermann and Kristof Decoster for editorial support.

Acronyms used

ACT	Artemisinin-based combination therapy (for malaria)
ANC	Antenatal care
ART	Anti-retroviral treatment (of HIV infected patients)
DCP	Disease Control Program
EPI	Expanded Program of Immunizations
GHI	Global Health Initiative
HSS	Health Systems Strengthening
ICT	Information and Communication Technology
IMCI	Integrated Management of Childhood Illness
M&E	Monitoring & Evaluation
OOP	Out of pocket (health expenditure)
PMTCT	Protection of mother to child transmission (of HIV)
TB	Tuberculosis

Executive summary

1. Introduction

Recently, there is a broad consensus in the global health community on the need for health systems strengthening (HSS) to make further progress towards the Millennium Development Goals (MDGs) in sub-Saharan Africa. However, there is still divergence on how HSS should be framed, what HSS practically entails, and how it should be done. We set out to clarify HSS for managers of Disease Control Programs (DCPs).

2. Understanding health systems and service delivery

We propose a health systems framework with 10 basic elements to look at national health systems, including DCPs. We focus in particular on service delivery, which is composed of a variety of service delivery platforms that provide a multitude of priority interventions. Service delivery is nowadays mostly pluralistic with blurred boundaries between public and private entities. The implications of this pluralistic reality for both the health workforce and for the health seeking behavior of patients are often still underestimated, although they are essential for a context specific and path dependent understanding of a country's health system.

3. Health systems assessment and the Anna Karenina principle

Tolstoy's novel about an unhappy marriage can help us understand how each national health system is more or less dysfunctional in its own particular way. An action oriented national health systems assessment will have to bring together different perspectives, including from DCP managers.

4. Way forward at country level

Actors in the health system will have to develop a common vision on a balanced health system, on priority HSS interventions and strategies, and embrace a three-pronged time perspective for HSS. This will involve strategies to build, to feed, and to reform the health system. Some of these strategies are purely technical while others are complex but each will have an effect on health systems.

The contribution of DCPs to HSS can be summarized in five types of contributions with a widening scope, ranging from (1) unburden the health system; (2) avoid unnecessarily burdening certain delivery platforms; (3) knowledge transfer from DCPs; (4) strengthen multipurpose platforms and support systems; finally (5) contribute to cross-cutting core functions in the health system. This progressively involves more collaboration and joint understanding with other actors in the health system.

This translates in five possible strategic options for DCP managers regarding HSS. These range from (1) "We do our job, disease control; HSS is other people's job" to (2) "avoid negative spillover" from our DCP and (3) "promote positive spillover" to the wider health system to (4) participate in joint operations, for example, joint comprehensive antenatal care or joint community-based extensions; and (5) join with the overall health systems venture to transform health service delivery.

Global health dynamics have created a window of opportunity towards HSS, which could be seized by DCP managers at the country level, starting from their country specific reality, with guidance from the principles outlined in this Concept Note.

Key messages

- Disease Control Programs (DCPs) and general health services are both necessary and complementary in countries with a high disease burden, such as those sub-Saharan Africa, and they often share common service delivery platforms. They are often interdependent and weaknesses in general health services will ultimately undermine outcomes for DCPs.
- All actors in the health system have to acknowledge the increasingly pluralistic nature of health systems, especially service delivery, with blurred boundaries between public and private. This has important implications for overall leadership and governance in the health sector.
- Important new priority health interventions have emerged over the last decades, such as ART, PMTCT, bed nets, and for child birth, normal delivery assisted by skilled attendants. These have important implications for service delivery, which are still insufficiently recognised.
- HSS efforts should strive towards a balanced health system. This requires a broader health system view, and a sound country specific health systems assessment, with particular focus on service delivery.
- Overall HSS is not an automatic spillover of DCPs; it requires an understanding of health systems and a HSS mindset.
- The current global focus on health systems creates opportunities for DCP managers at the country level to engage in HSS.

1. Introduction

In September 2000, the United Nations created a new movement in the fight against poverty: 189 countries in the General Assembly expressed their commitment to the Millennium Development Goals (MDGs) in the Millennium Declaration (World Health Organization 2004). The recognition of health as one of the key determinants of human development is translated in three health-related MDGs. MDG 4 and 5 focus respectively on children and women as priority target groups, and MDG 6 focuses on priority diseases (HIV/AIDS, malaria, and other major diseases), representing the bulk of the disease burden in low income countries.

With an arsenal of cost effective priority interventions at hand it was thought that the way towards the MDGs was mainly an issue of resource mobilization to scale up access to these priority interventions (Commission on Macroeconomics and Health 2001). This required an increased share in national health budgets, as well as a larger share of bilateral and multilateral aid dedicated to health. New global funding instruments, now called Global Health Initiatives (GHIs), were launched (Brugha 2001). GHIs have in common that they mainly support specific disease control programs (DCPs) (Travis 2004; Biesma 2009; Samb 2009).

However, the unprecedented amounts of money invested did not yield the expected return in terms of improved health outcomes: interim evaluations reveal that some progress has been made but that many African countries are not on-track to achieve the health MDGs by 2015 (United Nations 2010; Murray 2007). A report by the Countdown to 2015 for Maternal, Newborn and Child Survival initiative documented that the coverage of preventive interventions that can be planned intermittently, such as antenatal care, is much higher than the coverage of interventions that require well functioning around the clock services, such as emergency obstetric care (Bryce 2008).

Health system weaknesses were identified as the major obstacles hampering the progress of DCPs. The most common weaknesses are poor infrastructure, insufficiency of human resources in quantity and quality, frequent stock-outs of drugs and other commodities, lack of good monitoring data and deficiencies in leadership and governance (Travis 2004; Galichet 2010; World Health Organization 2004; Hanson 2003; Druce 2008; Harries 2009). That these weaknesses lead to a limited “absorptive capacity” of weak health systems to effectively and efficiently use the increased resources was also questioned (Moerman 2003; Stillman 2005).

Moreover GHIs gave rise to concerns and even to strong allegations. It was said that GHIs’ selective support to DCPs would produce negative side effects in weak health systems, and that GHIs would shift general health system resources towards the control of targeted diseases, particularly to HIV/AIDS (Stillman 2005; England 2007; Garrett 2007; Maciocco 2008).

The allegations on financial shifts were questioned (Shiffman 2008) but reviews of the (somehow limited) evidence on the interactions between GHIs and country health systems revealed that the broader health system effects are mixed (i.e., both positive and negative) and vary across contexts and between DCPs (Samb 2009; Yu 2008; Biesma 2009; Assefa 2009; Oomman 2008; Harries 2009). Examples of important problem areas are the differential access to targeted and other services, the attrition of health workers from the public sector to GHI-funded DCPs, the set up of parallel supply and information systems and the lack of alignment with country priorities (Travis 2004; Samb 2009). Negative effects are most obvious in countries with health worker shortages, where well-funded DCPs set up attractive payment and training for health workers. Positive effects of GHIs are more likely in stronger health systems (Samb 2009).

The insufficient progress in health outcomes due to health system weaknesses on the one hand, and on the other a concern about possible negative health system effects of GHIs brought all actors together in a new platform with the aim to maximize positive synergies between health systems and GHIs (Samb 2009). Various initiatives were also taken to boost harmonization and alignment, most notably the International Health Partnership and related initiatives (IHP+).

Currently one can state that there is a broad consensus on the need for Health Systems Strengthening (HSS) if one wants to reach the health MDGs by 2015 (Singh 2006), and that this requires an explicit strategy as positive spillovers do not happen spontaneously (Claeson 2003; Singh 2006; World Health Organization 2007a; Reich 2008; World Health Organization 2007b; Shaw 2009).

Nowadays most national health policy papers, disease control strategic plans, and donor strategies for the health sector contain a section on HSS, but their content varies widely (Goeman 2010; Galichet 2010). HSS may be interpreted in several different ways ranging from selective HSS, targeting specific health systems weaknesses to reach specific health outcomes, to comprehensive or system wide HSS (Marchal 2009; Travis 2004; Reich 2008; Reich 2009). Some have called for a diagonal approach (Sepulveda 2006; Ooms 2008).

When it comes to “How to do HSS?” most global health actors agree that lessons can be learned from country experiences (International Treatment Preparedness Coalition 2008; Pfeiffer 2010), and that there are interesting insights from particular DCPs, such as AIDS programs (Druce 2008), TB programs (World Health Organization 2008a; Harries 2009; Atun 2010c); from GAVI (Goeman 2010; Galichet 2010); from polio eradication (Loevinsohn 2002); and from neglected tropical diseases programs (Gyapong 2010), but they remain quite vague on how exactly to transfer lessons learned between different contexts and different diseases.

Concerns about imbalances between DCPs and general health services in national health systems, and their relative merits in moving towards better health for all, are not new and in fact have existed for decades. The public health arena indeed has long been divided between proponents of comprehensive primary health care, adhering to a horizontal approach, and advocates of more targeted approaches; who opt for a selective set of disease control interventions implemented through vertical programs (WHO 1978; Walsh 1979; Mills 1983; Unger 1986; Mills 2005; Uplekar 2007). Currently some actors still seem divided along the lines of these “old dichotomies” although the debate is now shifting towards combining the strengths of both approaches in health systems (Reich 2008; Frenk 2009; Lawn 2008).

Moreover, discussions on HSS still seems to be hampered by different definitions of health systems (World Health Organization 2008b) and of the place of DCPs within health systems (Atun 2008a), and by the use of a variety of health systems frameworks (Shakarishvili 2010). The interface between DCPs and general health systems is usually discussed in terms of integration. However, there are many different types and degrees of integration possible between two entities, ranging from a little bit of collaboration to total merging (Atun 2010a; Atun 2010b; Frenk 2009).

Against this background, we set out to develop a Concept Note with the intention to help managers of DCPs at country level wanting to contribute to HSS. We focus on countries in sub-Saharan Africa with a high burden of AIDS, TB, and malaria but acknowledge that there is a wide diversity between and within these countries. We maintain focus on service delivery, sometimes called the micro level or the “the frontline,” which constitutes the interface between the health system and its users.

We try to avoid ambiguous vocabulary or vocabulary strongly reminiscent of the “old dichotomies” - such as “horizontal versus vertical” - and hence we felt the need to define new language that is in line with both systems thinking (Atun 2008b; Leischow 2008; de Savigny 2009) and complexity

thinking (Plsek 2001). We also frankly acknowledge the increasingly pluralistic nature of health systems (mixed health systems), and hence try to think through implications beyond the “backbone public health system” (Bloom 2004; Hanson 2008; Lagomarsino 2009; Pfeiffer 2008; Berman 2001; Mackintosh 1999).

In Section 2 (page8) we first focus on how national health systems can be understood with their strengthening in mind, with a special focus on service delivery and on its pluralistic nature. In Section 3 (page17) we then use the Anna Karenina principle to explain an approach to health systems assessment at the national level. In Section 4 finally (page20) we develop an approach on how DCPs can contribute to HSS at country level.

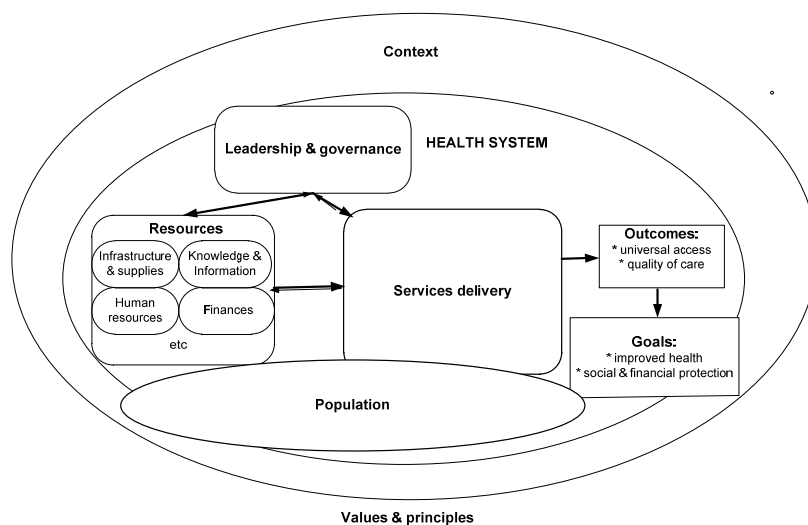
2. Understanding health systems and service delivery

In this chapter, we adopted the WHO 2000 definition of health systems: “a health system includes all the activities whose primary purpose is to promote, restore, or maintain health.”* We present a framework for analyzing the reality of health systems and the place of disease control programs (DCPs) in health systems. This framework captures the health system in its pluralistic reality, acknowledging the importance of public and private subsystems (both private for-profit and private not-for-profit). We will look in more detail into service delivery and the interface between DCPs and general health services, at different levels of the health system (macro, meso and micro).

Health systems framework with 10 basic elements†

The proposed health systems framework includes the six basic building blocks of the WHO health systems framework, but goes beyond them by stressing four issues: (1) a focus on outcomes and goals; (2) the importance of underlying values and principles; (3) service delivery as the core building block, which needs unpacking (not a black box); and (4) health systems interactions with the population and with the specific contexts in which they are embedded. This results in the framework as depicted in Figure 1.

Figure 1. A framework with 10 elements to describe and analyze health systems



* Quote from World Health Report 2000: “In today’s complex world, it can be difficult to say exactly what a health system is, what it consists of, and where it begins and ends. This report defines a health system to include all the activities whose primary purpose is to promote, restore or maintain health. Formal health services, including the professional delivery of personal medical attention, are clearly within these boundaries. So are actions by traditional healers, and all use of medication, whether prescribed by a provider or not. So is home care of the sick [...] health promotion and disease prevention, and other health enhancing interventions like road and environmental safety improvement [...]. Beyond the boundaries of this definition are those activities whose primary purpose is something other than health - education, for example - even if these activities have a secondary, health-enhancing benefit. Hence, the general education system is outside the boundaries, but specifically health-related education is included. [...] This way of defining a system does not imply any particular degree of integration, nor that anyone is in overall charge of the activities that compose it. In this sense, every country has a health system, however fragmented it may be among different organizations or however unsystematically it may seem to operate. Integration and oversight do not determine the system, but they may greatly influence how well it performs.

† A working paper on the Health Systems Framework, containing a full bibliography, is available at <http://www.strengtheninghealthsystems.be/developingnewframeworks.html>.

Here we offer a brief description of the 10 elements.

(1) Outcomes and goals. The prime goals for a health system can be encapsulated as improving the status of health care in order to contribute to the social and financial protection of the nation. A health system also aims at responding to the demands of the population. There is a need to find an optimal balance between these goals. Between service delivery and the final goals, one can define intermediate outcomes such as universal coverage for providing universal access to good quality health services that are affordable, reachable, and acceptable to all people. “Quality” also implies safety, effectiveness, and efficiency.

(2) Values and principles. Health systems are permeated by values and principles. These usually vary between countries and among actors within a country; examples are: health care as a right, participation, solidarity, or choice. Other important but often conflicting principles are autonomy, security, and protection; efficiency and effectiveness; maximization or optimization; individual and collective perspectives; a cosmopolitan or nationalistic paradigm of social justice, equity, and sustainability. The principles are often implicit. Nevertheless, debates around health systems and available options for strengthening are often influenced by them.

(3) Leadership and governance. Governance includes policy guidance to the whole health system, coordination between and regulation of different functions, levels, and actors in the system, and optimal allocation of resources and accountability towards all stakeholders. Regulation is a major instrument for governing the health sector. We define regulation as something that goes beyond rules, laws, guidelines and their enforcement, and also includes professional and ethical rules and norms and any kind of incentives, such as regulatory mechanisms (Mills 2006). Good governance implies making explicit the guiding values and principles in the health system and how tradeoffs and changes are negotiated.

(4 to 7) Organisation of resources/inputs. The organisation of resources involves (4) human resources, (5) financing, (6) medical supplies and infrastructure, and (7) technologies and health information for monitoring and evaluation. These are well developed in WHO’s “six building blocks” health system framework (World Health Organization 2007a).

(8) Service delivery. This is the central process at the core of any health system. Service delivery should be understood in a very broad sense, including all “delivery of health-related goods and services.” Service delivery produces the immediate outputs of all the inputs in the health system.* Service delivery includes all services, interventions and products, delivered through general health services and all DCPs, including the community-based extensions, that provide preventive, curative, and rehabilitative care, and it constitutes the main interface with the population. The organization of service delivery determines to a great extent whether the inputs lead to desired outcomes: universal coverage and quality of care.

Service delivery is, in our opinion, too often treated as “a black box.” We think it needs to be unpacked and further elaborated if one wants to deepen the understanding of HSS. We will elaborate this further under “Unpacking the ‘black box’ of service delivery.”

* Examples are consultations, hospitalizations, vaccinations etc. These outputs are often summarized as health service indicators: user rates, hospitalization rates, vaccination coverage rates etc.

(9) Interactions with the population. The population and different groups and organizations in the population are not only a target or beneficiary of the health system. They are also citizens with rights and obligations towards the health system; they are patients or customers; funders and suppliers of care (Frenk 2010). Interactions occur, among others, between the population and the state; between the population and the providers; between the population and third party payers (insurance). Three functions are dominant: the generation of and response to demand, participation /empowerment, and voice.*

(10) Interactions with the context. These interactions concern primarily the national level but also consider the global context. Interaction with the context involves reaction and adaptation to national and global socio-economic, technological, cultural, political, and environmental realities, and most importantly to changes and transitions in the context, including changes in the burden of disease. It also entails interaction with actors who are not a direct part of the health system, but have influence on it, such as politicians, social services, and other sectors and ministries. Last but not least, it entails interaction with the external context, which includes international aid and donors.

The proposed health systems framework can be read as a simple input - process - output/outcome/impact sequence, guided by principles and embedded in a certain environment. This is, of course, an over-simplification, as health systems are all but linear; they are best analyzed as complex, adaptive systems (Plsek 2001).

This health system framework is primarily designed to capture the reality of national health systems, but can be used in more selective ways (e.g., to capture and analyze specific programs, such as AIDS, TB, malaria, EPI, etc., or to look at local health systems).

Looking at a health system at different levels

The use of the health systems framework is quite straightforward when applying it on a national level, as a framework to describe and analyze a country's national health system. However, when analyzing a health system, one can look at different levels. One can look at patient/provider interactions; at the organization of individual health facilities; at local networks of health facilities; or at the bigger picture, up to the national level. Each of these different levels provides different perspectives and thus merits separate consideration.

In this note we use the following definitions for levels in a health system: macro-level = national health system; meso-level = local or district health system; micro level = from individual health facilities up to the patient/provider interface. Each level has its specificities, roles and functions. These may vary quite substantially between countries, depending on the type and level of decentralization and autonomy of regions, provinces, or districts.

At the macro-level (national health systems), some key roles may be: balancing policies, strategies and allocation of resources in line with overall system goals; alignment and harmonization of supply systems, information systems, financial administration, and regulation of reward and incentive systems for health workers; coordination between different programs and health services, between subsystems and levels towards a strong and harmonious health system with good performance;

* This is now increasingly framed in terms such as “community systems” and “community systems strengthening”. See: Global Fund Information Note: Community Systems Strengthening (May 2010). http://www.theglobalfund.org/documents/rounds/10/R10_InfoNote_CSS_en.pdf.

normative and oversight role with national guidelines, regulation and control systems; interface with international donors and agencies.*

At the meso-level (local health systems, often called health districts), some core roles may include: coordination of various actors who play overlapping and complementary roles in general health services and in DCPs; this may involve supervision, training, management of supply and information systems; adaptation of national guidelines to local circumstances. We postulate that an oversight function for all health-related facilities, actors and activities is quite crucial at this level. This is often the role assigned to the District Health Office or a similar structure, such as the District Health Management Team.

At the micro-level, core roles may include: a.o., actual delivery of health-related goods and services through a variety of health service delivery platforms; management of facilities and services, involving the balancing of resource allocation, staff time and incentives at the operational level; creation of optimal working conditions, adequate supplies, and infrastructure. They may also involve issues such as the oversight of an individual patient information system for follow up, referral, and retracing; and the development of a relationship with the population and collaboration with lay organizations; and collaboration and coordination with other services/organizations (e.g., social workers, schools, and sanitation services).

For deeper insight into service delivery, which concerns mainly the micro- and meso-levels, our proposed health systems framework is too generic. This is also the case for the other dominant health systems frameworks, such as WHO's building blocks framework. We felt the need to develop in more detail the aspects and elements of service delivery.

Unpacking the “black box” of service delivery

Service delivery comprises all services that have as their primary purpose the improvement of health. It thus includes general health services and services that are aimed at specific health problems; disease control services and services tackling the suffering of individuals with “any” health problem; preventive and curative services; personal health services and population based activities. Service delivery is often described in terms of “essential services” or “primary health care,” both of which typically comprise a variety of interventions and activities delivered through various health facilities and delivery strategies. We propose for this concept paper to analyze service delivery in terms of “priority interventions” and “service delivery platforms.”

Multitude of priority interventions

Health services in developing countries usually focus on priority interventions, also called high-impact interventions. An inventory of all such interventions comprises an extensive list of preventive interventions (such as measles, polio, tetanus, and Hepatitis B vaccinations), curative interventions (such as antibiotics for pneumonia, ACT for malaria, and basic emergency obstetric care) and that those promote interventions (such as supply of safe drinking water, breastfeeding, and hand washing by mothers). Priority interventions can be classified in a variety of ways, according to the health problem or focal disease, according to the target group, or the technology used (AIDS interventions, malaria interventions, TB interventions, maternal health interventions, vaccinations, pre-natal interventions, etc.).

Such a list of interventions is indeed highly variable, which requires diverse modes of delivery. One reason for this is that some are discrete transactions that can be highly standardized (such as

* At this level, general oversight is usually located in the central Ministry of Health, with a number of coordination bodies, such as SWAp secretariat, Global Fund's CCM, and others.

insecticide treated nets or measles vaccinations) while others are complex interventions (such as ART for persons with AIDS, which is composed of many different tasks spread over a long succession of contacts lasting many years). Some involve mainly logistics (e.g., EPI), others also professional judgments (e.g., comprehensive emergency obstetric care), which has a clear relation with the type of health workers involved. Priority interventions are sometimes delivered as single stand-alone interventions (e.g., distribution of nets); several interventions can be bundled (e.g., EPI), sometimes a multitude of interventions can be packaged (e.g., as IMCI; or as comprehensive Minimum Package of Activities).

For operational purposes, priority interventions can be regrouped in three classes according to broad types of service delivery arrangements: (1) highly transaction-intensive and discretionary individual oriented clinical services, which require individually tailored diagnosis and treatment, and are characterized by a important asymmetry of information between patient and provider; (2) population oriented services, such as immunization and vitamin supplementation that can be delivered through periodic outreach; and (3) community and family oriented services that support self-care and do not require professional transactions (World Bank 2003). The annex on page 34 contains a detailed list of priority interventions for the health MDGs regrouped in a similar typology: 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).

This list of priority interventions evolves in time with changing disease patterns and the development of new medicines and technologies. This is most obviously the case for AIDS-related interventions, such as ART & PMTCT, and new vaccines. But also “normal delivery by skilled attendant” is a relatively new addition to the list. All these interventions were not part of the post Alma Ata wave of PHC expansion in sub-Saharan Africa, when health districts were established all over the continent. They have recently been added to this vast and continuously expanding list. Before shifting from such list to service delivery, three points need to be made. First, most countries cannot implement each and every priority intervention; they will have to make their own appropriate choice among the interventions on the list. Second, all countries also provide services which do not necessarily contribute directly to the health MDGs, such as diabetes care, pain relief, control of leprosy, surgical care for appendicitis, etc. Third, service delivery cannot be reduced to the delivery of a multitude of priority interventions. There also are a variety of cross-cutting integrative and coordination activities, which are part of primary care services’ function as “a hub of coordination” (World Health Organization 2008b).

Variety of service delivery platforms in a balanced health system

All health services strive for a common goal: improved health. The focus of DCPs is mostly on priority interventions to control the diseases which constitute the highest burden for society to improve specific health outcomes. General health services have a broader focus as they should be able to respond to the suffering caused by a wide variety of diseases, and contribute to social and financial protection. In striving for universal coverage both DCPs and general health services increasingly rely on community-based extensions, such as periodic immunization outreach or permanent community health workers. These service delivery platforms are complementary (they contribute in different ways to the overall health systems goals, Figure 1, page 10), and overlapping (with many activities of DCPs being implemented in general health services). There also are a variety of shared and parallel supply and information systems, and many health care workers are not confined to one delivery platform, but contribute to several ones. One can identify a mix of individual DCPs (such as AIDS, TB, malaria, EPI, and maternal health programs), a set of facilities (such as health centers and hospitals), and a diversity of services and strategies (such as mobile vaccination teams, national vaccination

days, and campaigns to distribute commodities). There is thus a whole range of delivery channels of health-related goods and services. We will refer to all these as “delivery platforms.”

Many decades-old debates in public health have focused on the relative merits of DCPs and general health services and of specific delivery platforms. They have often been framed in terms such as “facility-based versus community-based strategy” or “the relative importance of first line versus hospital services” or “horizontal versus vertical approach” (see “old dichotomies” in our introduction). There is, however, a growing recognition that a strong health system is invariably composed of a complex mix of all such delivery platforms, and that optimizing such a mix depends on country specific contextual issues, such as disease burden, and is highly path dependent, but that the resulting overall health system should somehow be balanced. In the debate about HSS this growing consensus has unfortunately been obscured and overshadowed by “the old dichotomies.”

The recognition of the desirability of a balanced health system, or a balanced mix of delivery platforms, is quite important. This balance implies that if certain entities are disproportionately weak, they will undermine the overall functioning of the health system. Further strengthening the dominant delivery platforms will not yield the desired results, as the weaker elements will remain as bottlenecks (e.g., further strengthening hospital-based care delivery without improving weak primary care services; or further extending already strong DCPs while the rest of the health system remains poorly developed).

Pluralistic health systems

Service providers can be characterized as private or public, for-profit or not-for-profit, formal or informal, professional or non-professional, allopathic or traditional, remunerated or voluntary. These distinctions within the health system are often blurred, to the point that some consider the use of these categories as obsolete or counter-productive, which may partly explain the confusion in debates around the public and private roles and realities in health systems (Bloom 2001).

Public private mix with blurred boundaries

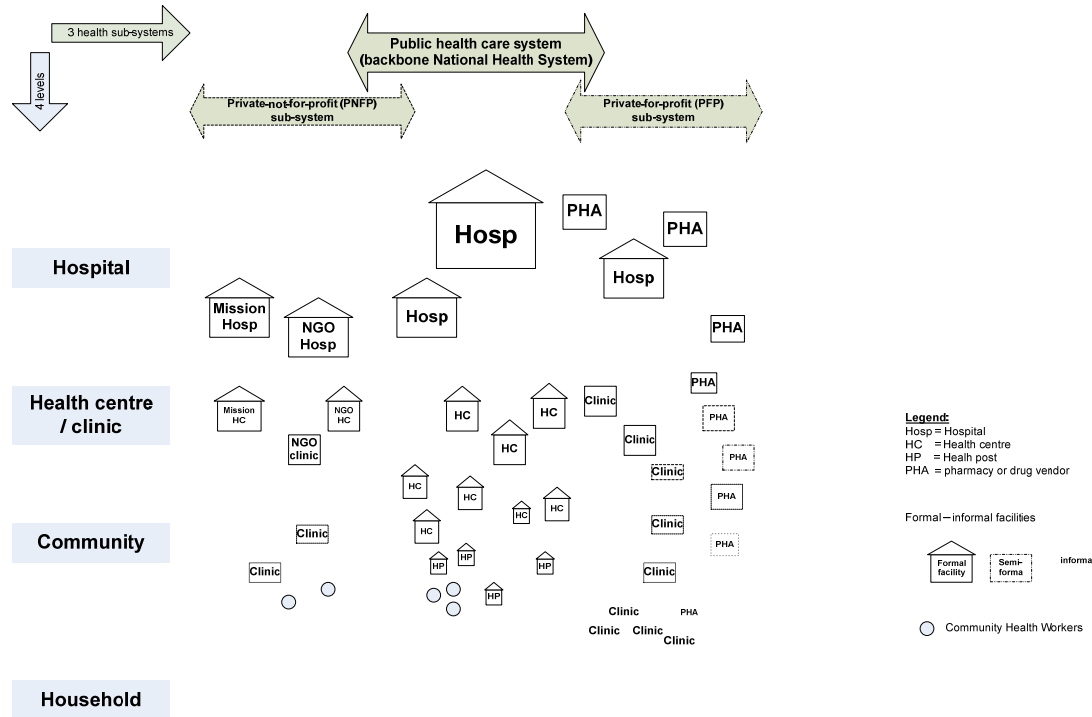
In almost all low income countries, a public health care system makes up the backbone of the health system. Owned and managed by the state, this public system has historically been quite dominant, even monolithic in many low income countries. In others, it has always co-existed with a private subsystem, often missionary. The past couple of decades have seen an important shift, mainly due to the fast expansion of a private for-profit subsystem and the proliferation of NGOs as part of private not-for-profit subsystems.

In most health systems, providers constitute a complex mixture, partly as a result of planning and organization and partly due to personal initiative or spontaneous evolution. All these providers operate somehow within more or less stringent formal and informal regulatory frameworks and react to a variety of incentives and disincentives, motivators and demotivators

. There is often a lack of balance in the services delivered and poor coordination between the actors (Bloom 2001). This pluralistic nature of health systems is often left implicit or obscured, and sometimes even entirely neglected. This may well hamper progress in the debate around HSS.

The health facilities in a pluralistic health system can be presented graphically (). The hypothetical health district depicted in this figure has a “backbone” public health care system with hospitals, health centers, health posts, and community health workers. The private not-for-profit subsystem is composed of a mission and a NGO hospital, health centers and clinics, as well as some semi-formal community clinics and community health workers. The private for-profit subsystem is mainly composed of pharmacies and clinics.

Figure 2. Visualization of the pluralistic nature of supply of general health care services and goods in a hypothetical health district (meso-level)



Functional relations, supply systems and oversight functions could be added to this figure, as well as other specific strategies of the DCPs, such as outreach teams (which are mainly developed within the public subsystem, but not exclusively). For these functions and relationships, there is again a wide variety of realities depending on the context, with parallel supply and supervision systems, coexisting with certain shared systems. Invariably there is a public oversight function (e.g., district medical office), but whether this function effectively extends its influence into the private subsystems varies again widely.

Some priority interventions are often highly concentrated within a subsystem. For example, childhood vaccination and treatment of TB cases are mostly concentrated in the public subsystem, possibly also in the private not-for-profit subsystem; one could speak about “monopolistic or oligopolistic delivery” and not necessarily with a negative connotation. Other priority interventions naturally take place in a certain type of facility (e.g., comprehensive emergency obstetric care is performed in hospitals exclusively). Other interventions are less concentrated; management of diarrhoea and management of malaria occur in all types of facilities in all subsystems, including at household level. Obviously, the private for-profit sector will concentrate on lucrative activities, mainly curative care for acute episodes and pregnancy related services, for which there is a willingness and capacity to pay, or activities for which they receive interesting subsidies from a third party payer, usually the State or a donor.

Complex pluralistic health systems provide particular opportunities and challenges from a public health perspective. One is related to the supply side (the health labor force and their motivation), the other to the demand side (the health seeking behavior of patients). We develop these here in some detail.

Motivating the health labor force in pluralistic health systems

In a complex pluralistic mix of general health services, DCPs and their community based extensions, a large variety of health workers provide a wide range of health related goods and services. As in any sector of human society, there are various incentives and motivations for individual providers and for health service organizations to “do a good job” or to “strive towards good performance” (or divert them from doing so). They are often referred to as financial versus nonfinancial incentives, or intrinsic versus extrinsic motivation. Some (can) have an immediate effect, such as financial incentives, others a longer term effect, such as career prospects depending on good performance.

How providers are remunerated, how strong hierarchical command and control mechanisms are, and how developed professional norms and standards are, all have a strong influence on behavior and performance of providers. These three ways of influencing provider behavior are sometimes summarized as “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). Health workers in each subsystem are exposed to and motivated by a mix of “carrots, sticks, and sermons.”*

In many health systems, curative services and pharmaceuticals are paid out of pocket, especially in the private subsystem, but also increasingly in public facilities, with (part of) the revenue being a direct financial incentive for the provider. High-priority activities as part of DCPs are often free at the point of delivery and the personnel of such programs is often more incentivized by their salaries or bonuses, combined with sticks and sermons.

Aligning incentives with system goals

This diversity of influences on health workers leads to highly variable incomes and motivations among health workers. Differences are often especially big between public and private subsystems and between rural and urban areas, but there may also be considerable variability between health facilities in the same subsystem and even within health facilities. This leads to huge income differentials within local and national health systems. Trying to align incentives for individual providers with the incentives of the organizations for which they work is often difficult; it is even more difficult to design incentive systems that motivate providers to focus on priority interventions and to deliver quality care that meets people’s demands in order to maximize their contribution to wider health system outcomes and goals. This is a major challenge in any health system, but particularly in health systems with overall shortage of human resources, where different services and programs compete on the health labor market for scarce qualified health workers.

“Regulating incentives” (Ensor 2007) within a health system is indeed a formidable challenge, especially in a complex and pluralistic health system, and should be a major focus for governance in the health sector.

* “Carrots, stick, and sermons,” with carrots most typically associated with the private for-profit subsystem, sticks most typically associated with the public subsystem and sermons most prominently present in the private not-for-profit subsystem.

Health seeking behavior in complex pluralistic health systems

From a patient perspective, this pluralistic reality results in complex and diversified health seeking behavior, in extreme cases sometimes referred to as “shopping.” Patients seeking care have to make a more or less informed choice between these different categories of providers. Patients and families usually make such choices on a very pragmatic basis, with physical and financial access as strong determinants of their choices, along with the reputation of a provider or a facility regarding the present health problem. This diversified health seeking behavior often involves self-referral and discontinuation of treatment, and often disrupts the health planner’s logic, especially where every health facility has a catchment area, and where patients are referred between facilities. Health planners seem to underestimate the challenge constituted by the pluralistic reality of health care delivery. Aligning supply and demand towards high coverage with priority interventions is a very different challenge in a mixed health care system - in which big parts are largely out of the control of health authorities - than in a centrally planned public health service.

Health systems in context

Although every country’s national health system is somehow unique, reflecting planning decisions and developments over past decades, there are similarities and differences, which are sometimes captured in attempts to make health systems typologies. Frequently health systems around the world have been classified according to their dominant mode of financing as “tax-funded systems (Beveridge),” “social health insurance systems (Bismarck)” or “segmented systems.” Such classification is increasingly seen as an over-simplification and relatively unhelpful, as almost all health systems are now funded from a diversity of sources, and include very diverse realities within a country.* In low income countries there almost invariably is a complex mix of tax funding, donor funding - often from a wide variety of sources - and an increasing share of out of pocket expenditure, with health insurance usually poorly developed. Such health systems are often characterized as underfunded and/or fragmented.

But obviously not only the modes of financing characterize health systems. Also other elements determine the health system. For instance, from a health workforce perspective, one can characterize health systems as having a health worker shortage, or plethoric health staff, or having a workforce maldistribution, etc. The extent to which prescribing and dispensing medicines is controlled by health professionals and the extent to which quality control of medicines takes place also create very different situations in terms of health care market dynamics and access to medicines. These are thus also important characteristics of health systems. Similarly overall leadership and governance in the health system vary a great deal, with a range of actors playing dominant roles in different settings, such as Ministry of Health, other ministries and State entities, professional organizations, payers, and other non-State actors.

Why are health systems so diverse? In very general terms, one can say that as social institutions, health systems are shaped by the context and are products of a historical process (path dependent).

Health systems are context specific

Health systems are part of societies. As social institutions (Freedman 2005; Kruk 2010; Gilson 2003), they are at the same time a product of the overall society in which they are embedded and they influence this society. A few examples may illustrate this. (1) If the overall society values free market entrepreneurship and personal choice, this will influence the health system. (2) If there is a lack of transparency and a weak rule of law in the overall society, the health system will suffer as well, as

* Beveridge versus Bismarck can be seen as another of public health’s old dichotomies. Despite the appropriate health economists joke (Question: What is the difference between Bismarck and Beveridge? Reply: That they are both dead!), heated debates around the relative merits of tax- or insurance-funded health systems are still raging.

these issues have an influence on a country's capacity to raise taxes and fund its social services, as well on the trust citizens have in a social security system. (3) If the overall society has a high degree of inequity, this may be reflected in the health system; but the health system can also be a vehicle to decrease the inequities. Take for instance a society with a strong divide between richer and healthier urban areas and poorer and less healthy rural areas. If most resources in that health system are oriented towards hospitals in the big cities, this can be seen as an expression of that inequitable situation, in which logically most resources are concentrated in urban areas to serve the demand of the vocal and privileged urban elite. Alternatively, policy makers can decide to go against this logic, and use the health system to channel resources to the underprivileged, and give priority to peripheral services to reach the poor in rural areas.

Health systems are thus complex social institutions, deeply embedded in the society of which they are part, reflecting its values and aspirations. At the same time, health systems can be seen as privileged vehicles to realize societal values and aspirations (Commission on Social Determinants of Health 2010).

Health systems are also path dependent

Health systems are not only a product of present day society, but also have a historical trajectory (McKee 2004; World Health Organization 2008b). If a country used to have a centrally planned economy, this is often still reflected in the structure of its health system, and in the number and attitudes of civil servants. Also the type of colonial administration is still reflected in present day health systems (Van Lerberghe 1993; Coovadia 2009). Many present day hospitals can trace their origins to religious organizations and their role in care for the sick and destitute. But all health institutions have throughout their history constantly adapted to new developments and transitions, such as a changing disease burden, new technologies, changing expectations of patients and providers, increased information (through media and ICT) and changing roles of the state in the health and social sectors. The way health-related professions are organized and regulated also depends on historical processes and has a strong influence on the functioning of health systems (Dussault 2008). Likewise the role of DCPs in particular countries is path dependent, related to previous colonial influences, and more recently to donor policies.*

If health systems were to be invented from scratch today, they would probably be designed very differently, with quite a different role for professions, for ICT, etc. But this is not the case. Health systems are what they are at present and will evolve incrementally from that point. This recognition of the complex adaptive nature of health systems is crucially relevant for HSS efforts. It explains why any blueprint approach to HSS is likely to fail, as HSS needs to start from a profound understanding of the health systems reality that it attempts to strengthen, and hence the need for health systems assessment.

* Colonial influences are still dominant in some regions, most notably the “campaigns against the big endemics” (*la lutte contre les grandes endémies*) in francophone Africa (Van Lerberghe 1993).

3. Health systems assessment and the Anna Karenina principle

Box: The Anna Karenina principle.

The first sentence of Tolstoy's novel Anna Karenina reads: "Happy families are all alike; every unhappy family is unhappy in its own way."

By this sentence, Tolstoy meant that, in order to be happy, a marriage must succeed in many different respects. [...] Failure in any one of those essential respects can doom a marriage even if it has all the other ingredients needed for happiness.

This principle can be extended to understanding much else about life besides marriage. We tend to seek easy, single factor explanations of success. For most important things, though, success actually requires avoiding many separate possible causes of failure.

*Cited from Jared Diamond. *Guns, Germs, and Steel. A short history of everybody for the last 13,000 years.* Vintage UK, 1997 (page 157).*

When analyzing a national or a local health system, the identification of problems usually reveals weaknesses of a very diverse nature, such as:

- Measles vaccination coverage is below target;
- Bed net coverage is low;
- There is very limited uptake of family planning although it is easily available;
- PMTCT is implemented in few health facilities;
- Most malaria cases are treated at home or by private providers, often with outdated and ineffective treatments;
- Geographical access in rural areas is very poor;
- There are frequent stock-outs of essential medicines in public health facilities;
- There is a shortage and/or maldistribution of qualified health workers, especially in rural areas;
- There is low civil service morale, and health workers are not an exception. Civil servant health workers are engaged in an unregulated way in dual practice and they often poach patients in public facilities;
- There are frequent under the table payments in public facilities;
- Financial access is poor, because of high reliance on out of pocket payments (OOP);
- There are many parallel systems within the Ministry of Health: supply systems, information and reporting systems, supervision systems, etc;

- There is a proliferation of NGOs that coordinate poorly with the public subsystem and have little coordination among themselves;
- Public services are perceived as quite unresponsive to patient's demands, while the private for-profit subsystem is extremely responsive;
- Certain DCPs have grown disproportionately compared with the rest of the health system;
- Public sector provision is limited to a very selective list of priority interventions, at the expense of care for diabetes and other chronic non-communicable diseases;
- Omnipresence of substandard medicines in private drug outlets;
- The health system is fragmented, with many different facilities competing with each other;
- The health system is underfunded, there is low total health expenditure, with very low public health expenditure and high OOP, resulting in frequent catastrophic health expenditure;
- There is lack of health system regulation and poor adherence to professional ethics.

There are various ways to present such list in a logical order, including by drawing on the health systems framework we propose (Figure 1, page 10).

However, a list without obvious logical order as the one presented above may be seen as an illustration that the Anna Karenina principle also applies to health systems, which could be formulated as: *“Dysfunctional health systems can be dysfunctional in many different ways” and “Failure in any of its essential elements can doom a health system, even if it has all the other ingredients needed for success.”* And much like there is no dichotomy to divide between happy and unhappy marriages, there is a wide range on a continuum between more successful health systems (or well functioning health systems) and less successful health systems (or dysfunctional health systems).

Indeed any such factor as “chronic drug shortage,” or “strong reliance on out of pocket payments,” or “very poorly remunerated staff that has to rely on under the table payments for their subsistence needs” can easily doom a health system, even if many other ingredients for success are in place (e.g., adequate infrastructure, guidelines and programs developed, staff trained, etc.). Such severe problems are usually obvious and easily revealed by any health system analyst. However, it is rare that such single factor problem would be the entire explanation. More frequently there is a whole range of problems and deficiencies, some of which may be more difficult to “discover,” either because of their nature (e.g., lack of transparency in management, or technical quality of diagnosis) or because a more obvious problem hides an underlying weakness. Moreover, any problem in a health system can also be seen as a symptom of a higher level problem, inside or outside the health sector.

So, one can consider that it is inherently difficult to make a comprehensive health systems assessment. Moreover, this is further compounded by observation biases, perspectives, and preferences.

Different biased perspectives. Just like an opinion on why a certain marriage is unhappy may be strongly influenced by the position of the one making the judgment (outsider or insider; mother, father or child), the judgment on why a certain health system is weak or dysfunctional tends to be biased by the position in the health system of the person making the judgment. A health service manager, DCP manager, NGO or civil society activist, central government official, donor representative; insider or outsider; doctor, economist or sociologist, etc., will probably arrive at different conclusions when assessing a particular health system.

Also problem identification is often done to obtain donor funding (Galichet 2010), and consequently is easily skewed to issues that can be solved with extra funding and produce results within relatively short time frames to match basic performance improvement indicators (e.g., supply of commodities, training of health workers, introduction of new interventions, etc.).

This may be further compounded by mixing of the above mentioned biases with certain ideological preferences and the overall approach used by the expert (normative or pragmatic mindset; planning or steering logic).^{*} It is important to recognize that “planning of health programs and health services” and “steering of the existing health system” are somehow different logics as it may oppose the logic of DCP managers (planning, command and control) with the logic of HSS in complex pluralistic health systems (steering, negotiation, regulation). Constructive engagement of DCP managers in HSS may require “fusion logic.”

Analysts using different perspectives and prioritizing different goals may come up with seemingly a quite different diagnosis of a particular country’s health system, and hence formulate very different priorities or proposals on how to strengthen the health system.

And this concept note is maybe not an exception to such observation bias. It embraces explicitly the following perspective: that health systems are complex realities, often very unsatisfactory ones, hence the need for “comprehensive health systems assessment at country level” looking at the overall health system (all delivery platforms for all priority interventions, all DCPs, all subsystems, all levels, all actors). To make such assessment action-oriented, we think that it should have a strong focus on service delivery for priority interventions by DCPs and general health services. Especially the overlaps and interfaces between DCPs and general health services should be mapped, as they can serve as entry points for HSS strategies.

Such an action oriented country level health systems assessment is both crucial and challenging. It is crucial, because all of the above leads to a strong warning against blueprint solutions for HSS. All HSS will have to be based on a sound understanding of the country-specific situation, and start from that reality, however unsatisfactory that reality may be. It also is challenging, because the health systems assessment needs to overcome the divergent and biased perspectives towards a joint vision for a strengthened health system.

^{*} Example 1: People who celebrate the pluralistic nature of health systems versus others who regret this as undesirable “privatization” (be it overt or creeping).

Example 2: The need for more planning and management versus the need to strengthen governance, leadership, and steering. Planners try to design health systems with “no gaps and no overlaps,” as in WHO’s six health systems building blocks (World Health Organization 2007a). This contrasts somehow with the logic of good governance which aims at steering messy unsatisfactory realities with incremental changes towards more satisfactory realities.

4. Way forward at country level

In this last chapter we will discuss first what could be an approach to HSS; second what are possible DCP contributions to HSS; and third how these translate into strategic options for DCP managers at the country level.

Towards balanced health systems strengthening (HSS)

Continuing to apply the Anna Karenina principle on health systems, one could state: “Health systems analysis, and hence proposals for HSS, have greatly suffered from a tendency to seek easy, single-factor explanations of success, leading to simple proposals to fix complex dysfunctional health systems.”

In some countries a certain weakness in the health system may be very dominant, and fixing that problem may greatly improve the performance of the health system (e.g. adequate drug supply). However, in most health systems there is a complex set of weaknesses, which calls for a mix of feeding, building, and reorganizing the health system:

- (1) Building or feeding the health system, e.g., the expansion of the network of public health facilities, increased or better inputs for the health system, such as more funding, pooled money instead of out of pocket expenditure, more health workers, better trained health workers, better incentivized health workers, quality assured essential medicines, or the introduction of new interventions...the list of possible examples is long indeed.
- (2) Reorganizing or reforming the health system, e.g., decentralization; introduction of results-based financing, etc.

Indeed in most instances a rich bundle or mix of HSS interventions and strategies will be required. And implementing one intervention will often reveal other weaknesses that will have to be tackled in turn. There is never a quick or final fix; instead, there is a need for a continued process of analysis, adaptation, and improvement. Steering this process is one of the core functions of health systems governance.

The particular HSS interventions or HSS strategies proposed to strengthen a certain health system will not only be determined by the assessment made (see the previous chapter, in which it is argued that this assessment is invariably influenced by the analysts’ position and perspective), but also by the time perspective used.

Time perspective: quick wins versus investing for the next generation?

There are huge differences in time perspectives used for HSS. If the weakness of a health system is framed as an emergency, then short term solutions will be sought. If weaknesses are framed as expressions of deep rooted inequities or other social determinants of health, then one will usually come up with proposals with a very different time perspective (“investing for the next generation”).

Very roughly, one can oversimplify and classify interventions into three categories, according to whether they can yield short, mid or long term results (Rohde 2008):

- (1) Short term: DCPs often include priority interventions that can yield “quick wins,” to reduce relatively quickly the burden of disease. This is especially the case where simple and effective interventions exist, such as measles vaccination, or certain malaria control measures. These can

realize tangible outcomes quite quickly, especially in countries where these diseases still cause a high disease burden.*

- (2) Mid term: General health services provide many priority interventions that will take more time to set up and have a tangible impact (e.g., emergency obstetric care or IMCI).
- (3) Long term: Health promotion and intersectoral work on the broader determinants of health, such as the promotion of healthy lifestyles, or the empowerment of women will require even longer time frames for tangible impact (Commission on Social Determinants of Health 2010).

In most countries such **three-pronged time perspective** is indicated. One can illustrate this from a disease perspective,[†] or from a health workforce perspective,[‡] or from a health care financing perspective.[§] For all these areas short, mid and long term strategies will often need to be combined.

Is working inside the health system always contributing to HSS?

When using a health systems framework including all inputs into the health system (Figure 1, page 10); when acknowledging that DCPs, general health services and community-based extensions all are important and complementary; when recognizing that health systems are pluralistic, and that this reality is here to stay and that all levels in the health system need to play their respective roles one might be tempted to consider anybody working inside the health system, or financing parts of it, as somebody contributing to HSS.

However, there is a need to distinguish between two potential modes: “being part of the health system and keep it going, however dysfunctional it might be” and “strengthening the health system.”

Towards balanced and comprehensive HSS

Although evolving towards a “balanced and comprehensive HSS” is no small challenge, we venture to propose some criteria for an overall approach:

- (1) Develop a comprehensive view towards a balanced national health system, including the 10 elements of the framework, including all DCPs, general health services, community-based extensions and their support systems, the different levels, all different actors, and with a view towards universal coverage for an appropriate choice of priority interventions using a variety of overlapping delivery platforms;

* The need for more resources for the control of neglected tropical diseases also is increasingly advocated within such “quick win” logic (Musgrove 2009; Hotez 2010b; Hotez 2010a).

† Another way of illustrating this could be with different diseases:

- Certain communicable diseases, such as malaria and measles, where good DCPs can have relatively quick and impressive results (however these gains can be all too easily lost without on-going disease control activities);
- Other diseases, such as TB, may take much more time;
- Still other diseases, including the growing burden of chronic non-communicable diseases (NCDs), such as diabetes and cardio-vascular diseases, need long-term chronic care and long-term lifestyle changes. From this perspective, tackling HIV/AIDS is more similar to NCDs than to traditional communicable diseases.

‡ Human resources for health (HRH): task shifting = possible quick win; training community health workers (CHWs), lower cadres = mid-term; training professional health workers = long-term investment strategy.

§ Financing: Abolition of user fees = potential quick win; increase donor funding = potential mid-term strategy; develop an appropriate mix of tax and insurance to avoid OOP as source for domestic funding = long-term strategy.

- (2) Develop a three-pronged time perspective (short, mid and long term); and
- (3) Use a pragmatic and incremental approach that starts from the existing pluralistic situation and fully acknowledges the real weaknesses and strengths of the system at all levels (the “real reality”).*

Such balanced and comprehensive HSS will require several complementary scopes, and a mix of simple and complex strategies. Some of these will be relatively technocratic or simple HSS strategies, mostly “feeding the health system” strategies, or “building the health system” strategies. Others will be more complex and difficult HSS strategies; mostly “reforming the health system” strategies.

Examples of rather technical (simple) strategies are those related to increasing resources for under resourced systems, extending the system, or introducing new activities, such as: increasing overall funding; providing or subsidizing certain essential commodities; guaranteeing reliable supply of essential medicines of good quality; extending the health service delivery network, when indicated; training more health workers in countries with overall human resources for health shortage; strengthening certain priority interventions (e.g., HIV prevention; PMTCT; bed net distribution; EPI, etc.) or introducing new priority interventions (e.g., Rota virus vaccine).

Examples of more difficult (complex) strategies are: (a) for the central MoH bureaucracy to make the shift from centralized management of government health services to decentralized management for the public backbone health system, and a shift towards a leadership, governance, and oversight role for the entire pluralistic health system (including the regulation of incentives and motivators for health workers across the entire health system and multisectoral advocacy towards determinants of health); and (b) incrementally implementing a shift from a mix of underfunded tax-based financing, supplemented with fragmented donor aid and high out of pocket expenditure (OOP) as a consequence; towards a balanced mix of donor and domestic funding including pooling of OOP in pre-payment schemes at different levels.

Any of these types of interventions and activities can potentially contribute to HSS, but can also have negative system wide effects, by undermining or weakening other elements in the health system, other priority interventions or platforms. Any such effects thus have to be anticipated or detected early.

A balanced HSS should not be confused with “not disturbing anything or anybody.” Although HSS is not a zero sum game, as there often are positive system wide effects and efficiency gains can contribute to better outcomes for all objectives, HSS will necessarily have to make choices and thus change certain equilibriums. For example, in a country with a high HIV burden, it is impossible to introduce priority HIV related interventions, such as ART and PMTCT - which are very labor intensive - without diverting part of the health worker pool to these interventions and thus reducing the time dedicated to other interventions. Likewise, operating a shift from exclusive input-based financing of health services toward mixed input and output based financing will potentially trigger a cascade of changes in the workforce and in supervision. Indeed, any such reform strategy will require adaptations in many different elements of the health system. They may change power relations or shift the control of resources to other actors and increase or decrease the decision making ability of others.

* There are many different dimensions of such a “pragmatic and incremental approach”: For example (1) accepting the triple motivation of health workers and trying to align incentives towards priority objectives; and (2) accepting that health policy equals the art of the possible in a certain governance and stakeholder environment.

There will always be people who perceive themselves as losing out, and others who perceive themselves as winners. This may create tensions and trigger resistance to change, as Machiavelli so clearly noted 500 years ago.

About Change...

"[...] there is nothing more difficult to arrange, more doubtful of success, more dangerous to carry through than initiating changes. [...] The innovator makes enemies of all those who prosper under the old order and only lukewarm support is forthcoming from those who would prosper under the new."

Nicolas Machiavelli, in *The Prince* (1513)

Possible DCP contributions to HSS

DCPs nowadays have a special position in health systems in sub-Saharan Africa. They have been set up to reduce the burden of specific high burden diseases, or of priority health problems for specific groups, and they focus on specific outcomes and relatively narrow goals. In many countries they have grown as dominant entities inside health systems. This is especially the case in countries where general health services have developed slowly, or have been neglected or have lost out to the competition from a proliferating private for-profit subsystem that focuses mostly on curative consultations. DCPs often have extensive financial and other resources and support systems, and deliver most services and commodities free of charge, or at highly subsidized rates. For certain interventions, such as EPI, TB treatment, or ART, DCPs have acquired a very dominant position, a quasi-monopoly, while for other interventions this is not the case (e.g., malaria treatment).

DCPs often rely on their own systems for financing, for training and rewarding of health workers, for supplies, for monitoring and evaluation, for management and governance. Sometimes DCPs also manage their own service delivery platforms, although DCPs often share delivery platforms with other DCPs or with general health services (such as ANC for PMTCT, or general OPD for malaria treatment). Under which conditions or to which extent relying on parallel systems is desirable is quite controversial.* The situation obviously depends on the context and on the overall functioning of the health system, and also on the kind of intervention (e.g., bed nets versus medical care).

Considering this special position of DCPs in national health systems, and acknowledging that many of the DCPs' priority interventions need reliable and accessible general health services, and that conversely general health services benefit from the existence of certain well-functioning and reliable DCPs, there is obviously a two way relationship between DCPs and general health services. DCPs can contribute to strengthening the overall health system and this in turn can contribute to better disease-specific outcomes.

We now focus on how DCPs can contribute to the goals of the overall health system and to HSS. This can be done in a variety of ways, which can be summarized in an unconventional way as five types of contributions.

Type (1): decrease the caseload for the general health services, or "to unburden the health system."

Type (2): avoid unnecessarily burdening of certain delivery platforms in the health system.

Type (3): operate a knowledge transfer from DCPs to the rest of the health system.

* Often this matter is debated in terms of "integration," which often is viewed as desirable. This is, however, an over-simplification. Recently Rifat Atun and colleagues published interesting and nuanced papers on integration (Atun 2010a; Atun 2010b).

Type (4): strengthen or build multipurpose delivery platforms and support systems.

Type (5): strengthen cross-cutting core functions.

These categories are not exactly mutually exclusive, they are partly overlapping. We give examples of each of these types.

Type (1) contributions: Effective DCPs can decrease the workload for general health services (“to unburden the health system”).

Explanation: Good disease control interventions reaching high population coverage reduce the disease burden, and hence decrease the workload for general health services.

Examples: (a) Recent experience in sub-Saharan Africa has again shown that good DCPs can substantially decrease the incidence of malaria and measles and thus decrease the number of patients seeking care for these diseases. (b) Good HIV prevention now will lead to fewer AIDS cases in eight or 10 years, and will make ART scale-up and maintenance more feasible. There is also convincing evidence that (c) early diagnosis of malaria cases and management with ACTs leads to fewer severe and complicated malaria cases, and less need for hospitalizations. (d) Good PMTCT results in less pediatric AIDS patients. (e) Good TB control prevents MDR-TB cases, which put a very high burden on health services. (f) High coverage with ART prevents many opportunistic infections and frees hospital beds.

Type (2) contributions: DCPs can avoid unnecessarily burdening of certain delivery platforms in the health system.

Explanation: (a) Simplification of priority interventions may decrease the overall workload for the health workforce. (b) Outsourcing of activities may prevent workload for weak health systems. (c) Use of a variety of delivery platforms or channels may decrease the workload for general health services. (d) Limit priority interventions to the most effective ones.

Examples: (a) Simplified protocols for ART & PMTCT require fewer follow-up visits and less staff time than sophisticated ones. (b) Bed net distribution through shopkeepers or community channels puts less logistic workload on health systems than distribution through health centers. (c) Use of both home and facility-based treatment; e.g., home-based ACTs for malaria may decrease clinic visits. (d) Home-based TB treatment versus DOTS by health workers. (e) Empowerment of patients and communities may decrease the workload for health workers: e.g. self-managed ART support groups for stable AIDS patients, or peer support groups for PMTCT, such as mother-to-mother initiatives may decrease the need for repeat consultations at health facilities. (f) For malaria control, in certain contexts it may be preferable to focus on very high coverage with ACTs for all malaria cases, and universal coverage with long lasting impregnated nets, rather than expand to other interventions, which are less cost-effective in that context.

Type (3) contributions: Knowledge transfer from DCPs to the wider health system.

Explanation: DCPs often pilot innovative ways of service delivery, or of operating their program. Certain innovations can be useful in other delivery platforms and for the management of other health problems.

Examples: (a) Counseling has often been introduced or formalized as part of AIDS services and AIDS programs have trained many health workers in counseling skills. It is quite obvious that such skills can be transferred and applied for many other health problems requiring a patient centered approach. (b) DCPs have often been the first to introduce ICT, and this obviously also can be useful for many other functions in the health system. (c) In some countries, ART programs rely much on peer support, such as patient groups, and community support mechanisms. In other countries, ART programs introduced models of managed care, or coordinated care. Such innovations obviously are

equally useful for many other health problems, especially chronic lifelong conditions, such as diabetes. (d) In many countries, DCPs first introduced an explicit focus on results, which can also be transferred to general health services.

Such examples could be seen as “positive spillover” from certain DCPs to the rest of the health system. However, it is unlikely that this will happen spontaneously, certainly not if DCPs function as separate silos. Positive collaboration between all actors in the health system will create more opportunities for such cross-fertilization.

Type (4) contributions: DCPs can strengthen or build multipurpose platforms and support systems.

Explanation: DCPs need support systems, such as supply systems, laboratory services and M&E systems. DCPs often use similar delivery platforms as other DCPs or as general health services. These systems are sometimes developed in parallel, but in certain circumstances it could be mutually beneficial to use DCP resources and dynamics to build or strengthen joint systems or platforms. Such approach is usually discussed in terms of integration but can be captured more precisely with terms such as “bundling,” “linking.”

Examples: (a) As DCPs heavily depend on reliable supply of commodities and reliable data collection and analysis for M&E purposes, they quite often set up independent systems. There may be possibilities for merging certain supply or M&E systems or creating common ones. (b) Likewise, several priority interventions require good quality ANC with high coverage. Several programs could join forces to design and support comprehensive and integrated ANC extending into remote communities and reaching high coverage for all priority interventions delivered through ANC and delivery services. This could involve joint training, supplies, incentives, supervision, and reporting. (c) A similar example could be developed for joint community outreach strategies, as a common delivery platform for a variety of programs, implementing several priority interventions simultaneously.

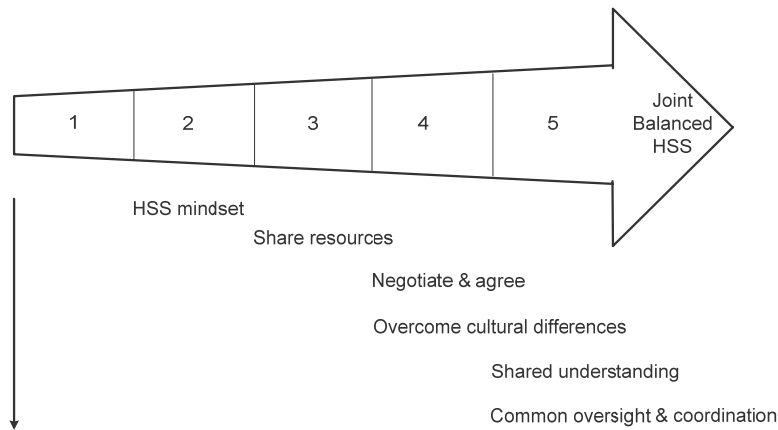
Type (5) contributions: DCPs can contribute to strengthening cross-cutting core functions in the health system.

Explanation: This is similar to type (4) contributions but extending the same logic to creation or organization of inputs and core functions for the health system, such as the general health workforce or overall health system financing. This would imply DCP managers being active and committed partners in a broad HSS coalition, that would not only look at priority interventions, as strongly emphasized in this concept note, but also at creating and supporting core subsystems or health systems elements, such as developing an effective health workforce, developing common oversight and regulatory functions, or developing a reliable health financing system.

Examples: (a) DCPs could extend support for capacity building to training schools for nurses and midwives as an investment in pre-service training for the next generation of health workers, making sure that their initial education includes training on high priority interventions, including program guidelines, reducing the need for expensive workshops for several programs shortly after graduation. (b) Several DCPs could collaborate on initiatives to abolish user fees for children and pregnant women, as this may decrease access barriers for a variety of priority interventions. (c) Malaria programs often highlight the problem of substandard or downright counterfeit anti-malarial medicines. This problem cannot be solved by a single DCP. But malaria programs could well join forces with drug regulatory agencies and other DCPs to jointly develop a coherent national medicines policy.

So, there is a range of broadening scopes for DCP contributions to HSS, ranked from (1) to (5), represented in Figure 3.

Figure 3. Types of contributions of DCPs to Health Systems Strengthening



Type (1) contributions do not necessarily involve any collaboration outside the DCP. From Type (2) onwards, some insight in the overall health system will be necessary, as well as collaboration with the other actors in the health system. From Type (4) onwards, sharing of resources will be necessary; and will require higher levels of negotiation and agreement. Such negotiation is not easy in any case, as it will involve collaboration across different institutional and programmatic “cultures,” which becomes even more difficult if some actors are well resourced and others under-resourced.* However, a shared understanding of what creates a “balanced health system” as well as shared approaches to HSS (as attempted in this concept note), a health systems mindset, and collaboration in a common oversight or coordination function or office may greatly contribute to such “joint balanced HSS.”

Strategic Options for DCP managers regarding HSS

In most countries in sub-Saharan Africa, the “big four DCPs” are TB, EPI, AIDS and malaria (which surprisingly gives the acronym TEAM). These four DCPs exist in every country, are usually quite big, relatively well funded, and operate throughout the country (with the exception of malaria in countries with malaria-free areas). Other DCPs, such as those to fight neglected tropical diseases (e.g., trypanosomiasis, onchocercose or schistosomiasis) may be important in certain ecological zones, often remote and underserved areas, but are absent in others. The different potential contributions of DCPs to HSS outlined previously have to be taken up by the DCP managers of these different DCPs at country level. They have to be convinced that strengthening the overall national health systems is indeed the next step towards the health MDGs (Frenk 2010).

In line with the five types of potential contributions of DCPs to HSS, one can also distinguish five possible strategic options for DCP managers regarding involvement in HSS.

These are:

Option 1: DCP managers focus exclusively on DCP goals.

Option 2: DCP managers focus on DCP goals with a health systems perspective.

* There are indeed several different subcultures within the health system, such as HIV/AIDS culture versus TB culture; DCPs culture versus general health services culture; or public service versus private not-for-profit/NGO culture. These differences sometimes lead to culture clashes, or even culture “wars.”

Option 3: DCP managers serve as an inspiration for others within the health system.

Option 4: DCP managers participate in joint delivery platforms or joint support systems.

Option 5: DCP managers seize the current global momentum for HSS and participate explicitly in an overall joint HSS venture to contribute to overall general health services in partnership with other health systems actors.

Which option is appropriate in a particular context depends on many factors, most obviously on the nature of the DCP (EPI, TB, malaria, HIV/AIDS, neglected tropical disease, etc.), and consequently the type of selected priority interventions, on the burden of disease, on the starting position (whether the DCP is at present operating in a relatively isolated - “vertical” - way or not), and the development and functionality of the health system, in particular the general health services. Size and scope of the DCP also matter. The extent to which a particular DCP is able and willing to contribute to comprehensive HSS obviously also depends on the size and nature of the DCP. Which options are appropriate thus depends on context and history. Which options are feasible will critically depend on the insight and commitment of key actors, including DCP managers.

We elaborate each of the 5 options in some detail:

Option 1: DCP managers focus exclusively on DCP goals (“reduce burden of a specific disease”).

As it is indeed important that DCPs do not lose focus (“obtain high population coverage for priority interventions”), DCP managers can opt for focusing exclusively on their own DCP goals, to maximize the reduction of the burden of disease. This is indeed an important health systems goal, and relieves the workload of the general health services by “unburdening the health system”. In this option, DCPs planners and managers will undertake many activities, including provision of inputs, to feed the health system, but in a very selective way. They may create new parallel systems rather than using existing dysfunctional systems. This could be summarized as: “We DCP managers do our job: disease control, HSS is someone else’s job.”

Option 2: DCP managers focus on DCP goals with a health systems perspective.

In this option DCP managers have a clear awareness that DCPs are part of an overall health system and that the realization of certain DCP goals is critically hampered by health system weaknesses. This may lead to engagement in “selective HSS,” such as strengthening certain components that are critical bottlenecks for DCP goals, such as the supply system, the health information system, a blood bank for a HIV/AIDS program, laboratory capacity for ART, etc. This is the logic prevalent in most proposals submitted to GAVI’s HSS window, or HSS within disease-specific proposals for the Global Fund. Health systems awareness may lead to a “try to avoid doing harm attitude,” where DCP managers are sensitive to the needs and constraints of other actors in the health system, and try to avoid negative spillover effects, such as poaching health workers from general health services, in places where these are scarce.

Option 3: DCP managers serve as an inspiration for others within the health system.

The positive experience and drive from DCPs can inspire or cross-fertilize not only other DCPs but also the general health services, which are all too often stuck in old ways of implementing primary health care, as if few things have changed since Alma Ata (Frenk 2009).

DCPs are often more open to technical and organizational innovation, and many of these innovations can be transferred to the broader health system. Of course, not all innovation is good (such as the “per diem culture” related to the “seminar culture,” which are often seen as negative and perverting), nor is any innovation appropriate for general health services. Appropriate positive spillover may not happen spontaneously, and may have to be encouraged (as the prevention of potential negative spill-over, considered under Option 2, needs an active attitude too). But in

general one can say that ICT, such as computers and mobile phones, are still much underused in general health services, as are certain point-of-care diagnostics. Innovations in these fields by DCPs could be systematically analyzed for their potential to contribute to wider HSS, and DCP managers could play a proactive role in exploring and facilitating such positive spillover. This would require mutual understanding of needs, of ways of working, and of institutional cultures. This would require intensive collaboration.

Option 2 (selective HSS and “avoid negative spillover”) and Option 3 (“encourage positive spillover”) can be summarized in “dos and don’ts for HSS,” as compiled for TB program managers by STOP TB (World Health Organization 2008a). Options 4 and 5 go even further in encouraging DCP managers to reach well beyond the boundaries of their own program.

Option 4: DCP managers participate in joint delivery platforms or joint support systems.

Where important priority interventions are critically hampered by a weakness of a certain delivery platform that can be used to deliver other priority interventions promoted by other DCPs, this also creates an opportunity for more far reaching collaboration.

An obvious example is antenatal care (ANC). High coverage with high quality ANC is not only needed as part of any safe motherhood program, but also as part of any HIV/AIDS program (PMTCT), certain malaria control programs (intermittent preventive malaria treatment in pregnancy), and any EPI program (tetanus vaccination). Managers from different DCPs could decide to bundle these different priority interventions in comprehensive and integrated high quality state of the art ANC, instead of accepting old-fashioned “traditional get-together ANC” without clear objectives and without resources. Such joint work across programs and general services to implement such re-invigorated results-focused ANC attempting to reach “universal ANC coverage” could be an obvious win-win venture. This may involve overcoming many cultural differences, and above all a willingness to collaborate and share resources instead of a silos mentality (Figure 3, page 29).

Similarly, DCP managers could propose to join forces with other DCP managers and with actors from across the health system, to strengthen joint community outreach or joint community extensions, which are often neglected by general health services and rather well developed by DCPs. Such joint community systems strengthening can be beneficial for many DCPs as well as for general child and maternal health (e.g., outreach strategies for ANC, family planning, EPI, vitamin A supplementation, bed net distribution, distribution of medicines against neglected tropical diseases, where appropriate, etc.). Special attention should be paid to linking such community-based extension programs to the general health services. Such joint community-based extension programs can thus potentially create a win-win deal for several DCPs and for general health services alike.

Option 5: DCP managers participate in partnership in an overall joint HSSHSS venture.

DCPs could decide to engage fully in HSS at country level, such as agreed in the IHP+ global compact. This requires a joint comprehensive health systems assessment at country level, with special focus on service delivery. The specific contribution of DCPs could be to have a fresh look at all priority interventions, to make an appropriate choice among them, and how they can be bundled (probably in diverse ways) to be delivered over the mix of health delivery platforms and channels existing in a country, and to examine whether each of these platforms are optimally leveraged and incentivized to obtain high coverage and high quality.

One example may illustrate this:

“Normal delivery assisted by a skilled attendant” is a relatively new priority intervention.* The challenge is that it requires some kind of 24/24 - 7/7 permanent availability at a place that is geographically accessible at relatively short notice, in a setting that is culturally acceptable and from where an emergency referral is feasible at very short notice to a place where emergency surgery can take place. The implications of this have to be thought through in every context. Options will largely depend on geography, transport infrastructure, density of population, and of trained midwives. As a delivery platform, there is a range of options: at home, in a health centre or health post, or community clinic, in a private delivery clinic (e.g., at the home of the midwife), or at a hospital. In many low-income countries, health centers will probably be chosen as an important delivery platform. However, opening hours often will be very problematic, being usually closer to 40 hours per week, than the necessary 168 hours. Thinking through the implications of this, negotiating with community leaders and health staff, organizing incentive and motivation systems for staff, making innovative use of communication and information technologies, to transform the health centre in a permanently accessible and staffed facility will require quite some changes, embedded in community support systems and possibly including negotiated collaborations with the private transport sector. However, once this becomes a reality, the existence of such really permanent peripheral public health facility, with reliable referral possibilities, would create many new possibilities for improved coverage with several other priority interventions, including malaria and pneumonia treatment.

This is just one example, but engagement in the “optimization of existing delivery platforms to fit bundles of priority interventions” could be a crucial contribution of certain DCP managers in a national and comprehensive HSS venture.

Such joint HSS venture may be obvious for some, while for others it may be a radical change. It involves people changing attitudes and behavior. But it also involves engaging institutions, many of which are long established, with vested interests in the status quo. It also is about power and control of resources. Options 4 and 5 will thus also need institutional transformation, not only willing individuals. Still this can be greatly facilitated if funders of DCPs give the right signals and create an environment conducive for engagement in HSS.

* Striving for universal coverage for “normal delivery assisted by a skilled attendant” is new as until the 1980s, and even the 1990s, there was more attention for home delivery assisted by traditional birth attendants (TBAs) and for identifying high-risk pregnancies during ANC and assuring skilled attendance for these selected deliveries. When the “traditional” health district was designed, skilled attendance for normal delivery was not part of the minimum package of activities and health centers in most countries were not prepared for that.

The four big TEAM DCPs and the HSS window of opportunity

If conditions are ripe for Options 4 and 5, then DCP managers at the country level could become leading actors in comprehensive and balanced HSS. The authors of this note are convinced that this is the desirable way forward, we see it as a country-level operationalization of a diagonal approach to health systems development (Sepulveda 2006; Ooms 2008). We think this is especially relevant for the “big four DCPs” (AIDS, TB, malaria and EPI; “TEAM”) which are well established in every country. These four big DCPs are undeniably necessary in low-income countries in sub-Saharan Africa, now and in the long term. They are strongly supported by big international players, like WHO, UNICEF and the World Bank. They are globally coordinated through UNAIDS, STOP TB, Roll Back Malaria and GAVI alliance respectively. These four big DCPs are now mostly funded by Global Fund and GAVI. Both institutions have been funding HSS over the past years and are now part of the joint platform for HSS. It seems there is really a window of opportunity at the global level. It has to be seized at the country level too.

Annex: Priority interventions for MDGs

Source: From UNICEF and the World Bank's "Marginal budgeting for bottlenecks," a tool for performance-based programming and budgeting of health system's contributions to MDGs (version 4).

1. Family oriented community-based services
1.1 Family preventive/WASH services
Insecticide Treated Mosquito Nets
Quality of drinking water
Supply of safe drinking water
Use of sanitary latrine
Hand washing by mother
Indoor Residual Spraying (IRS)
Indoor air pollution
1.2 Family neonatal care
Clean delivery and cord care
Early breastfeeding and temperature management
Universal extra community-based care of LBW infants
1.3 Infant and child feeding
Breastfeeding for children 0-5 months
Breastfeeding for children 6-11 months
Complementary feeding
Therapeutic Feeding
Care for orphans
1.4 Community illness management
Oral Rehydration Therapy
Zinc for diarrhoea management
Vitamin A - Treatment for measles
Chloroquine for malaria (P.vivax)
Artemisinin-based Combination Therapy for children
Artemisinin-based Combination Therapy for pregnant women
Artemisinin-based Combination Therapy for adults
Antibiotics for U5 pneumonia
Community -based management of neonatal sepsis

2. Population oriented schedulable services
2.1 Preventive care for adolescents & adults
Family planning
HPV vaccination
Preconceptual folate supplementation
2.2 Preventive pregnancy care
Antenatal Care
Calcium supplementation in pregnancy
Tetanus toxoid
Deworming in pregnancy
Detection and treatment of asymptomatic bacteriuria
Treatment of syphilis in pregnancy
Prevention and treatment of iron deficiency anemia in pregnancy
Intermittent preventive treatment (IPTp) for malaria in pregnancy
Balanced protein energy supplements for pregnant women
Supplementation in pregnancy with multi-micronutrients
2.3 HIV/AIDS prevention and care
PMTCT
VCT
Condom use
Cotrimoxazole prophylaxis for HIV+ mothers
Cotrimoxazole prophylaxis for HIV+ adults
Cotrimoxazole prophylaxis for children of HIV+ mothers
2.4 Preventive infant & child care
Measles immunization
BCG immunization
OPV immunization
DPT immunization
Pentavalent (DPT-HiB-Hepatitis) immunization
Hib immunization
Hepatitis B immunization
Yellow fever immunization
Meningitis immunization
Pneumococcal immunization
Rotavirus immunization
Neonatal Vitamin A supplementation
Vitamin A - supplementation
Zinc preventive
Intermittent Presumptive Treatment (IPT) for children*

* Not currently recommended pending review by WHO

3. Individual oriented clinical services
3.1 Maternal and neonatal care at primary clinical level
Normal delivery by skilled attendant
Active management of the third stage of labor
Basic emergency obstetric care (B-EOC)
Resuscitation of asphyctic newborns at birth
Antenatal steroids for preterm labor
Antibiotics for Preterm/Prelabour Rupture of Membrane (P/PROM)
Detection and management of (pre)ecclampsia (Mg Sulphate)
Management of neonatal infections
3.2 Management of illnesses at primary clinical level
Antibiotics for U5 pneumonia
Antibiotics for diarrhoea and enteric fevers
Vitamin A - Treatment for measles
Zinc for diarrhoea management
Chloroquine for malaria (P.vivax)
Artemisinin-based Combination Therapy for children
Artemisinin-based Combination Therapy for pregnant women
Artemisinin-based Combination Therapy for adults
Management of complicated malaria (2nd line drug)
Detection and management of STI
Management of opportunistic infections
Male circumcision
First line ART for children with HIV/AIDS
First-line ART for pregnant women with HIV/AIDS
First-line ART for adults with AIDS
Detection and treatment of TB with first line drugs (category 1 and 3)
Re-treatment of TB patients with first line drugs (category 2)
MDR treatment with second line drugs

3.3 Clinical first referral care
Basic emergency obstetric care (B-EOC)
Normal delivery by skilled attendant
Active management of the third stage of labour
Comprehensive emergency obstetric care (C-EOC)
Resuscitation of asphyctic newborns at birth
Antenatal steroids for preterm labour
Antibiotics for Preterm/Prelabour Rupture of Membrane (P/PROM)
Detection and management of (pre)ecclampsia (Mg Sulphate)
Management of neonatal infections
Clinical management of neonatal jaundice
Universal emergency neonatal care (asphyxia aftercare, management of serious infections, management of the VLBW infant)
Antibiotics for U5 pneumonia
Antibiotics for diarrhoea and enteric fevers
Vitamin A - Treatment for measles
Zinc for diarrhoea management
Chloroquine for malaria (P.vivax)
Artemisinin-based Combination Therapy for children
Artemisinin-based Combination Therapy for pregnant women
Artemisinin-based Combination Therapy for adults
Management of complicated malaria (2nd line drug)
Management of sever malaria
Management of severely sick children (referral IMCI)
Detection and management of STI
Management of opportunistic infections
Male circumcision
First line ART for children with HIV/AIDS
First-line ART for pregnant women with HIV/AIDS
First-line ART for adults with AIDS
Children second-line ART
Adult second-line ART
Detection and treatment of TB with first line drugs (category 1 and 3)
Re-treatment of TB patients with first line drugs (category 2)
MDR treatment with second line drugs

3.4 Clinical second referral care
Comprehensive emergency obstetric care (C-EOC)
Basic emergency obstetric care (B-EOC)
Normal delivery by skilled attendant
Active management of the third stage of labour
Resuscitation of asphyctic newborns at birth
Antenatal steroids for preterm labour
Antibiotics for Preterm/Prelabour Rupture of Membrane (P/PROM)
Detection and management of (pre)ecclampsia (Mg Sulphate)
Management of neonatal infections
Clinical management of neonatal jaundice
Universal emergency neonatal care (asphyxia aftercare, management of serious infections, management of the VLBW infant)
Artemisinin-based Combination Therapy for children
Artemisinin-based Combination Therapy for pregnant women
Artemisinin-based Combination Therapy for adults
Management of complicated malaria (2nd line drug)
Management of sever malaria
Management of severely sick children (referral IMCI)
Detection and management of STI
Management of opportunistic infections
Male circumcision
First line ART for children with HIV/AIDS
First-line ART for pregnant women with HIV/AIDS
First-line ART for adults with AIDS
Children second-line ART
Adult second-line ART
Management 2nd line ART failure
Detection and treatment of TB with first line drugs (category 1 and 3)
Re-treatment of TB patients with first line drugs (category 2)
MDR treatment with second line drugs
Other emergency acute care

References

- Assefa Y, Jerene D, Lulseged S, Ooms G, & Van Damme W (2009) Rapid scale-up of antiretroviral treatment in Ethiopia: successes and system-wide effects. *PLoS Med* 6, e1000056.
- Atun R, Bennett S, & Duran A. When do vertical programmes have a place in health systems? World Health Organization Regional Office for Europe and European Observatory on Health Systems and Policies. 2008a. Copenhagen, WHO.
- Atun R, de Jongh T, Secci F, Ohiri K, & Adeyi O (2010a) A systematic review of the evidence on integration of targeted health interventions into health systems. *Health Policy Plan* 25, 1-14.
- Atun R, de Jongh T, Secci F, Ohiri K, & Adeyi O (2010b) Integration of targeted health interventions into health systems: a conceptual framework for analysis. *Health Policy Plan* 25, 104-111.
- Atun R & Menabde N (2008b) Health systems and systems thinking: In *Health Systems and the Challenge of Communicable Diseases: Experiences from Europe and Latin America* eds. Coker R, Atun R, & McKee M, Open University Press, London, pp.121-140.
- Atun R, Weil DE, Eang MT, & Mwakyusa D (2010c) Health-system strengthening and tuberculosis control. *Lancet* 2169-2178.
- Berman P (2001) Getting more from private health care in poor countries: a missed opportunity. *Int J Qual Health Care* 13, 279-280.
- Biesma RG, Brugha R, Harmer A *et al.* (2009) The effects of global health initiatives on country health systems: a review of the evidence from HIV/AIDS control. *Health Policy Plan* 24, 239-252.
- Bloom G. Private provision in its institutional context. Lessons from health. 1-40. 2004. London, DFID Health Systems Resource Centre.
- Bloom G & Standing H. Pluralism and marketisation in the health sector: meeting needs in contexts of social change in low- and middle-income countries. Institute of Development Studies. (No. 136), 1-36. 2001. Brighton, Institute of Development Studies. IDS Working Paper.
- Brugha R & Walt G (2001) A global health fund: a leap of faith? *Br Med J* 323, 152-154.
- Bryce J, Daelmans B, Dwivedi A *et al.* (2008) Countdown to 2015 for maternal, newborn, and child survival: the 2008 report on tracking coverage of interventions. *Lancet* 371, 1247-1258.
- Claeson M, Gillespie D, Mshinda H, Troedsson H, & Victora CG (2003) Knowledge into action for child survival. *Lancet* 362, 323-327.
- Commission on Macroeconomics and Health. Macroeconomics and Health: Investing in Health for Economic Development. Report of the Commission on Macroeconomics and Health. 1-201. 2001. Geneva, World Health Organization.
- Commission on Social Determinants of Health & World Health Organization. Closing the gap in a generation. Health equity through action on the social determinants of health. WHO. 1-256. 2010. Geneva, WHO.

Coovadia H, Jewkes R, Barron P, Sanders D, & McIntyre D (2009) The health and health system of South Africa: historical roots of current public health challenges. *Lancet* 374, 817-834.

de Savigny D & Taghreed A (2009) Systems thinking for health systems strengthening, WHO, Geneva, pp.1-112.

Druce N & Dickinson C. Making the most of the money? Strengthening health systems through AIDS responses. HLSP Institute. 1-8. 2008. London.

Dussault G (2008) The health professions and the performance of future health systems in low-income countries: support or obstacle? *Soc Sci Med* 66, 2088-2095.

England R (2007) Are we spending too much on HIV? *Br Med J* 334, 344.

Ensor T & Weinzierl S (2007) Regulating health care in low- and middle-income countries: Broadening the policy response in resource constrained environments. *Soc Sci Med* 65, 355-366.

Freedman LP (2005) Achieving the MDGs: Health systems as core social institutions. *Development* 48, 19-24.

Frenk J (2009) Reinventing primary health care: the need for systems integration. *Lancet* 374, 170-173.

Frenk J (2010) The global health system: strengthening national health systems as the next step for global progress. *PLoS Med* 7, e1000089.

Galichet B, Goeman L, Hill PS *et al.* (2010) Linking programmes and systems: lessons from the GAVI Health Systems Strengthening window. *Trop Med Int Health* 15, 208-215.

Garrett L (2007) The challenge of global health. *Foreign Affairs* 86, 1-12.

Gilson L (2003) Trust and the development of health care as a social institution. *Soc Sci Med* 56, 1453-1468.

Goeman L, Galichet B, Porignon DG *et al.* (2010) The response to flexibility: country intervention choices in the first four rounds of the GAVI Health Systems Strengthening applications. *Health Policy Plan* 1-8.

Gyapong JO, Gyapong M, Yellu N *et al.* (2010) Integration of control of neglected tropical diseases into health-care systems: challenges and opportunities. *Lancet* 375, 160-165.

Hanson K, Gilson L, Goodman C *et al.* (2008) Is private health care the answer to the health problems of the world's poor? *PLoS Med* 5, e233.

Hanson K, Ranson K, Oliveira-Cruz V, & Mills A (2003) Expanding access to priority health interventions: a framework for understanding the constraints to scaling-up. *J Int Development* 15, 1-14.

Harries AD, Jensen PM, Zachariah R, Rusen ID, & Enarson DA (2009) How health systems in sub-Saharan Africa can benefit from tuberculosis and other infectious disease programmes. *Int J Tuberc Lung Dis* 13, 1194-1199.

Hotez PJ (2010a) Peace through vaccine diplomacy. *Science* 327, 1301.

Hotez PJ & Pecoul B (2010b) "Manifesto" for advancing the control and elimination of neglected tropical diseases. *PLoS Negl Trop Dis* 4, e718.

International Treatment Preparedness Coalition. The HIV/AIDS Response and Health Systems: Building on success to achieve health care for all. On-the-ground research in Argentina, Brazil, Dominican Republic, Uganda, Zambia, Zimbabwe. Missing the target 6, 1-62. 2008.

Kruk ME, Freedman LP, Anglin GA, & Waldman RJ (2010) Rebuilding health systems to improve health and promote statebuilding in post-conflict countries: a theoretical framework and research agenda. *Soc Sci Med* 70, 89-97.

Lagomarsino G, de Ferranti D, Pablos-Mendez A *et al.* (2009) Public stewardship of mixed health systems. *Lancet* 374, 1577-1578.

Lawn JE, Rohde J, Rifkin S *et al.* (2008) Alma-Ata 30 years on: revolutionary, relevant, and time to revitalise. *Lancet* 372, 917-927.

Leischow SJ, Best A, Trochim WM *et al.* (2008) Systems thinking to improve the public's health. *Am J Prev Med* 35, S196-S203.

Loevinsohn B, Aylward B, Steinglass R *et al.* (2002) Impact of targeted programs on health systems: a case study of the polio eradication initiative. *Am J Public Health* 92, 19-23.

Maciocco G (2008) From Alma Ata to the Global Fund: The History of International Health Policy. *Social Medicine* 3, 36-48.

Mackintosh M (1999) Informal regulation: a conceptual framework and application to decentralized mixed health care systems: In Economic decentralization and public management reform eds. Mackintosh M & Roy R, Edward Elgar, Cheltenham, UK, pp.149-175.

Marchal B, Cavalli A, & Kegels G (2009) Global health actors claim to support health system strengthening: is this reality or rhetoric? *PLoS Med* 6, e1000059.

McKee M & Dubois CA (2004) Health systems in transition in Central and Eastern Europe. *J R.Coll.Physicians Edinb.* 34, 305-312.

Mills A (1983) Vertical vs horizontal health programmes in Africa: idealism, pragmatism, resources and efficiency. *Soc Sci Med* 17, 1971-1981.

Mills A (2005) Mass campaigns versus general health services: what have we learnt in 40 years about vertical versus horizontal approaches? *Bull World Health Organ* 83, 315-316.

Mills A & Ranson MK (2006) The design of health systems: In International public health: diseases, programs, systems, and policies 2 edn. eds. Merson MH, Black RE, & Mills A, Jones and Bartlett Publishers, Sudbury, pp.513-551.

Moerman F, Lengeler C, Chimumbwa J *et al.* (2003) The contribution of health-care services to a sound and sustainable malaria-control policy. *Lancet Infect Dis* 3, 99-102.

Murray CJ, Frenk J, & Evans T (2007) The Global Campaign for the Health MDGs: challenges, opportunities, and the imperative of shared learning. *Lancet* 370, 1018-1020.

Musgrove P & Hotez PJ (2009) Turning neglected tropical diseases into forgotten maladies. *Health Aff (Millwood)* 28, 1691-1706.

Oomman N, Bernstein M, & Rosenzweig S. Seizing the opportunity on AIDS and health systems. Center for Global Development. 1-72. 2008. Washington, Center for Global Development.

Ooms G, Van Damme W, Baker BK, Zeitz P, & Schrecker T (2008) The 'diagonal' approach to Global Fund financing: a cure for the broader malaise of health systems? *Global Health* 4, 6.

Pfeiffer J, Johnson W, Fort M *et al.* (2008) Strengthening health systems in poor countries: a code of conduct for nongovernmental organizations. *Am J Public Health* 98, 2134-2140.

Pfeiffer J, Montoya P, Baptista AJ *et al.* (2010) Integration of HIV/AIDS services into African primary health care: lessons learned for health system strengthening in Mozambique - a case study. *J Int AIDS Soc* 13, 3.

Plsek PE & Greenhalgh T (2001) Complexity science: The challenge of complexity in health care. *Br Med J* 323, 625-628.

Reich MR & Takemi K (2009) G8 and strengthening of health systems: follow-up to the Toyako summit. *Lancet* 373, 508-515.

Reich MR, Takemi K, Roberts MJ, & Hsiao WC (2008) Global action on health systems: a proposal for the Toyako G8 summit. *Lancet* 371, 865-869.

Rohde J, Cousens S, Chopra M *et al.* (2008) 30 years after Alma-Ata: has primary health care worked in countries? *Lancet* 372, 950-961.

Samb B, Evans T, Dybul M *et al.* (2009) An assessment of interactions between global health initiatives and country health systems. *Lancet* 373, 2137-2169.

Sepulveda J, Bustreo F, Tapia R *et al.* (2006) Improvement of child survival in Mexico: the diagonal approach. *Lancet* 368, 2017-2027.

Shakarishvili G, Atun R, Berman P *et al.* (2010) Converging Health Systems Frameworks: Towards A Concepts-to-Actions Roadmap for Health Systems Strengthening in Low and Middle Income Countries. *Global Health Governance* III, 1-17.

Shaw R & Samaha H. Building capacity for health system strengthening: a strategy that works. The World Bank Institute's flagship program on health sector reform and sustainable financing, 1997-2008. World Bank Institute. 1-25. 2009. Washington, World Bank.

Shiffman J (2008) Has donor prioritization of HIV/AIDS displaced aid for other health issues? *Health Policy Plan* 23, 95-100.

Singh A (2006) Strengthening health systems to meet MDGs. *Health Policy Plan* 21, 326-328.

Stillman K & Bennett S. Systemwide Effects of the Global Fund: Interim Findings from Three Country Studies. Abt Associates. 1-76. 2005. Washington, PHRPlus.

Travis P, Bennett S, Haines A *et al.* (2004) Overcoming health-systems constraints to achieve the Millennium Development Goals. *Lancet* 364, 900-906.

Unger JP & Killingsworth JR (1986) Selective primary health care: a critical review of methods and results. *Soc Sci Med* 22, 1001-1013.

United Nations & United. Keeping the promise: a forward-looking review to promote an agreed action agenda to achieve the Millennium Development Goals by 2015. UN General Assembly. A/64/665, 1-35. 2010. New York, UN.

Uplekar M & Raviglione MC (2007) The "vertical-horizontal" debates: time for the pendulum to rest (in peace)? *Bull World Health Organ* 85, 413-414.

Van Lerberghe W (1993) Les politiques de santé africaines: continuités et ruptures. *Bull Séances Acad R Sci Outre Mer* 39, 205-230.

Walsh JA & Warren KS (1979) Selective primary health care: an interim strategy for disease control in developing countries. *N Engl J Med* 301, 967-974.

WHO (1978) Declaration of Alma-Ata. *Lancet* 2, 1040-1041.

World Bank (2003) World Development Report 2004. Making Services Work for Poor People, Oxford University Press, Oxford, pp.1-288.

World Health Organization. Everybody's business. Strengthening health systems to improve health outcomes. WHO's framework for action. WHO. 1-60. 2007a. Geneva, WHO.

World Health Organization. The Global Fund strategic approach to health systems strengthening. Report from WHO to The Global Fund Secretariat. WHO. WHO/HSS/2007.1, 1-51. 2007b. Geneva, WHO.

World Health Organization. Stop TB policy paper: contributing to health system strengthening: guiding principles for national tuberculosis programmes. WHO. 1-22. 2008a. Geneva, WHO.

World Health Organization. World Health Report 2008. Primary Health Care: now more than ever. WHO. 1-148. 2008b. Geneva, WHO.

World Health Organization & World Bank. High-level forum on the Health MDGs. Summary of discussions and agreed action points. WHO. 1-7. 2004. Geneva, WHO.

Yu D, Souteyrand Y, Banda MA, Kaufman J, & Perriens JH (2008) Investment in HIV/AIDS programs: Does it help strengthen health systems in developing countries? *Global Health* 4, 8.

Additional documents used

Assefa Y, Van Damme W, & Hermann K (2010) Human resource aspects of antiretroviral treatment delivery models: current practices and recommendations. *Curr Opin HIV AIDS* 5, 78-82.

Atun RA, Lennox-Chhugani N, Drobniowski F, Samyshkin YA, & Coker RJ (2004) A framework and toolkit for capturing the communicable disease programmes within health systems: tuberculosis control as an illustrative example. *Eur J Public Health* 14, 267-273.

Banati P & Moatti JP (2008) The positive contributions of global health initiatives. *Bull World Health Organ* 86, 820.

Behague DP & Storeng KT (2008) Collapsing the vertical-horizontal divide: an ethnographic study of evidence-based policymaking in maternal health. *Am J Public Health* 98, 644-649.

Blaauw D, Gilson L, Penn-Kekana L, & Schneider H (2003) Organisation relationships and the 'software' of health sector reform. Background paper.: In Disease Control Priorities ed. World Bank University of Witswatersrand, pp.1-56.

Briggs CJ & Garner P (2006) Strategies for integrating primary health services in middle- and low-income countries at the point of delivery. *Cochrane Database Syst Rev* CD003318.

Buse K, Dickinson C, Gilson L, & Murray SF (2009) How can the analysis of power and process in policy-making improve health outcomes? *World Hosp Health Serv* 45, 4-8.

Criel B, Kegels G, & Van der Stuyft P (2004) A framework for analysing the relationship between disease control programmes and basic health care. *Trop Med Int Health* 9, A1-A4.

De Paepe P, Soors W, & Unger JP (2007) International aid policy: public disease control and private curative care? *Cad Saude Publica* 23 Suppl 2, S273-S281.

Enarson DA, Rusen ID, Chiang CY, Harries AD, & Billo NE (2009) Health systems that serve: what's the bottom line? *Int J Tuberc Lung Dis* 13, 804-809.

Fryatt R, Mills A, & Nordstrom A (2010) Financing of health systems to achieve the health Millennium Development Goals in low-income countries. *Lancet* 375, 419-426.

Gilson L, Palmer N, & Schneider H (2005) Trust and health worker performance: exploring a conceptual framework using South African evidence. *Soc Sci Med* 61, 1418-1429.

Giusti D, Criel B, & de Béthune X (1997) Viewpoint: public versus private health care delivery: beyond the slogans. *Health Policy Plan* 12, 192-198.

Golden BR & Martin RL (2004) Aligning the stars: Using systems thinking to (re)design Canadian healthcare. *Healthc Q* 7, 34-42, 2.

Handler A, Issel M, & Turnock B (2001) A conceptual framework to measure performance of the public health system. *Am J Public Health* 91, 1235-1239.

Hanefeld J & Musheke M (2009) What impact do Global Health Initiatives have on human resources for antiretroviral treatment roll-out? A qualitative policy analysis of implementation processes in Zambia. *Hum Resour Health* 7, 8.

- Harries AD, Jensen PM, Zachariah R, Rusen ID, & Enarson DA (2009) How health systems in sub-Saharan Africa can benefit from tuberculosis and other infectious disease programmes. *Int J Tuberc Lung Dis* 13, 1194-1199.
- Hermann K, Van Damme W, Pariyo GW *et al.* (2009) Community health workers for ART in sub-Saharan Africa: Learning from experience - Capitalizing on new opportunities. *Hum Resour Health* 7, 31.
- Hill PS (2010) Understanding global health governance as a complex adaptive system. *Glob Public Health* 1-13.
- Hongoro C & Normand C (2006) Health Workers: Building and Motivating the Workforce: In *Disease Control Priorities in Developing Countries* 2nd edn. eds. Jamison D, Breman J, & Measham A, Oxford University Press, New York, pp.1309-1322.
- Janssens B, Van Damme W, Raleigh B *et al.* (2007) Offering integrated care for HIV/AIDS, diabetes and hypertension within chronic disease clinics in Cambodia. *Bull World Health Organ* 85, 880-885.
- Kalim K, Carson E, & Cramp D (2006) An illustration of whole systems thinking. *Health Serv Manage Res* 19, 174-185.
- Kalk A, Groos N, Karasi JC, & Girrbaach E (2010) Health systems strengthening through insurance subsidies: the GFATM experience in Rwanda. *Trop Med Int Health* 15, 94-97.
- Kallings LO (2008) The first postmodern pandemic: 25 years of HIV/AIDS. *J Intern Med* 263, 218-243.
- Kerouedan D (2010) [The Global fund to fight HIV/AIDS, TB and Malaria 5-y: evaluation policy issues.]. *Bull Soc Pathol Exot* 103, 119-122.
- Kruk ME & Freedman LP (2008) Assessing health system performance in developing countries: a review of the literature. *Health Policy* 85, 263-276.
- Kruk ME, Porignon D, Rockers PC, & Van Lerberghe W (2010) The contribution of primary care to health and health systems in low- and middle-income countries: a critical review of major primary care initiatives. *Soc Sci Med* 70, 904-911.
- Lu C, Michaud CM, Khan K, & Murray CJ (2006) Absorptive capacity and disbursements by the Global Fund to Fight AIDS, Tuberculosis and Malaria: analysis of grant implementation. *Lancet* 368, 483-488.
- Mills A, Rasheed F, & Tollman S (2006) Strengthening Health Systems: In *Disease Control Priorities in Developing Countries* 2nd edn. eds. Jamison D, Breman J, & Measham A, Oxford University Press, New York, pp.87-102.
- Murray CJ & Frenk J (2000) A framework for assessing the performance of health systems. *Bull World Health Organ* 78, 717-731.
- Sampaio J (2007) Stronger health systems to beat TB. *Bull World Health Organ* 85, 333.
- Schneider H, Gilson L, Ogden J, Lush L, & Walt G (2006) Health systems and the implementation of disease programmes: case studies from South Africa. *Glob Public Health* 1, 49-64.
- Tin N, Lwin S, Kyaing NN *et al.* (2010) An approach to health system strengthening in the Union of Myanmar. *Health Policy* 95, 95-102.

Unger JP, De Paepe P, & Green A (2003) A code of best practice for disease control programmes to avoid damaging health care services in developing countries. *Int J Health Plann Manage* 18 Suppl 1, S27-S39.

Unger JP, De Paepe P, Ghilbert P, Soors W, & Green A (2006) Disintegrated care: the Achilles heel of international health policies in low and middle-income countries. *Int J Integr Care* 6, e14.

Unger JP, De Paepe P, Ghilbert P, Soors W, & Green A (2006) Integrated care: a fresh perspective for international health policies in low and middle-income countries. *Int J Integr Care* 6, e15.

Unger JP, D'Alessandro U, De Paepe P, & Green A (2006) Can malaria be controlled where basic health services are not used? *Trop Med Int Health* 11, 314-322.

Van Damme W, Van Lerberghe W, & Boelaert M (2002) Primary health care vs. emergency medical assistance: a conceptual framework. *Health Policy Plan* 17, 49-60.

Van Damme W & Van Lerberghe W (2004) Strengthening health services to control epidemics: empirical evidence from Guinea on its cost-effectiveness. *Trop Med Int Health* 9, 281-291.

Van Damme W, Kober K, & Kegels G (2008) Scaling-up antiretroviral treatment in Southern African countries with human resource shortage: how will health systems adapt? *Soc Sci Med* 66, 2108-2121.

van Olmen J, Criel B, Devadasan N *et al.* (2010) Primary Health Care in the 21st century: primary care providers and people's empowerment. *Trop Med Int Health* 15, 386-390.

Victora CG, Hanson K, Bryce J, & Vaughan JP (2004) Achieving universal coverage with health interventions. *Lancet* 364, 1541-1548.

Victora CG, Schellenberg JA, Huicho L *et al.* (2005) Context matters: interpreting impact findings in child survival evaluations. *Health Policy Plan* 20 Suppl 1, i18-i31.

Visschedijk J, Engelhard A, Lever P, Grossi MA, & Feenstra P (2003) Leprosy control strategies and the integration of health services: an international perspective. *Cad Saude Publica* 19, 1567-1581.