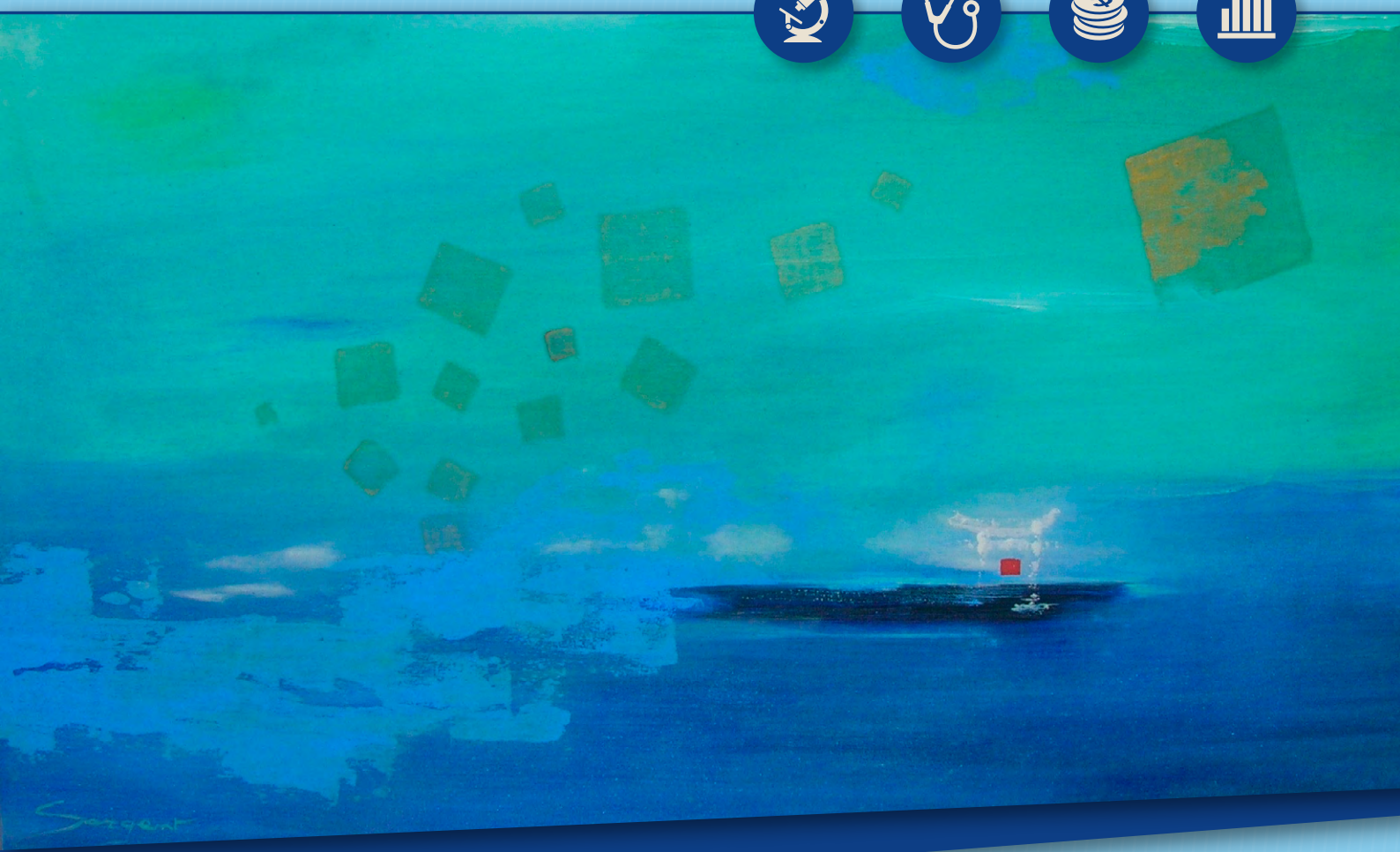


A SYSTEM-WIDE APPROACH TO ANALYSING EFFICIENCY ACROSS HEALTH PROGRAMMES



Susan Sparkes
Antonio Durán
Joseph Kutzin



World Health
Organization

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Cover artwork: original oil painting entitled "Made in Japan" by Fabrice Sergent

SUMMARY

Key messages:

- Individual health programmes typically provide a strong results-orientation for a particular intervention or disease. However, even when specific programmes are well-run, if they duplicate or misalign responsibilities with one another or with the rest of the health system, they can impose high costs when viewed from a wider perspective.
- As countries seek to expand and sustain coverage in an environment of decreasing external assistance and demands to improve efficiency, a holistic perspective that embeds health programmes within the overall health system can identify areas to improve efficiency in how resources are allocated and deployed.
- By disaggregating health programmes by their four main health system functions (service delivery, financing, generation of human and physical resources/ inputs, and stewardship/governance), misalignments, overlaps and duplications can be identified and addressed.
- Combining this approach with a focus on strengthening accountability for results can improve alignment of health programmes with their ultimate objectives.
- This approach can also provide a gradual, non-confrontational mechanism to facilitate dialog to shape a policy response to address identified sources of inefficiency as a means to enable sustainable improvements in effective coverage of priority interventions.

Background: Health programmes are able to target health interventions for specific diseases or populations, and historically, countries have relied heavily on them to deliver priority services. In low and middle income countries, this organizational approach has been reinforced by donor assistance for priority areas that often leads programmes to operate largely autonomously from one another in seeking to optimize the achievement of a specific objective. This dynamic has implications for how priority interventions are delivered and sustained, sometimes with separate organizational arrangements resulting in inefficient overlaps and duplications. As contexts change, and in particular, as responsibility for funding these programmes shifts more towards domestic resources, maintaining an array of programmes with distinct, separate organizational arrangements is unlikely to be affordable.

Objectives: This approach is meant to equip countries with a framework to identify and correct inefficiencies that compromise governments' ability to improve, or at the very least sustain, the delivery of priority health services. More specifically, the aim is to look across the array of health programmes that are part of each country's health system in order to detect "cross-programmatic" duplications, overlaps and misalignments. Once these have been identified, there is a foundation to address them through changes to specific aspects of how programmes are configured and operate within the context of a country's overall health system.

Framework and approach: We use the *functional* approach to health systems as the basis for this approach. All health systems fulfil four basic sets of activities (*functions*) – service delivery, financing, generating human and physical resources/inputs, and stewardship/governance – to produce outputs that in turn lead to outcomes. Health programmes include at least one, and sometimes all of these functions as well. Using this framework and taking the entire health system as the unit of analysis, we lay out a step-by-step process for countries

to systematically map the health system functions and related sub-functions within and across health programmes as a means to identify possible inefficiencies. The output of the application of this approach is a policy assessment of how a country's health programmes are organized. This provides the foundation to identify potential opportunities and options to get more or better coverage from available resources through reconfiguration, which may include new investment in underlying cross-cutting aspects as relevant.

1 INTRODUCTION

1.1. BACKGROUND AND OBJECTIVES

The World Health Organization (WHO) has emphasized in recent years the critical importance of efficiency to maximize returns on health sector resources [2, 3]. Possible duplications, overlaps, misalignments and general inefficiencies in the way resources are allocated and used need to be avoided, and if identified, corrected. This focus is needed to achieve the *Sustainable Development Goals*,¹ which stress both the achievement of targets and the ability to maintain progress over time.

This focus on sustainability provides a way of framing the challenges currently facing many low- and middle-income countries (LMICs) with respect to their health system objectives [4]. These countries are confronted by two sets of issues that require rethinking the way health systems are financed and organized to deliver services. First, their epidemiological profiles are beginning to converge towards those of high-income countries, with a rising prevalence of chronic, non-communicable diseases, including cancer, diabetes, and cardiovascular diseases, and their associated costs [5]. While their health systems will have to address risk factors such as obesity, tobacco use, and sedentary lifestyles, they will continue to grapple with meeting the

demands related to communicable diseases and conditions facing children and women of reproductive age.

Second, the recent financial crisis and global economic climate, combined with the Ebola outbreak, have altered donors' approach to development assistance [6]. From a financing perspective, as growth in allocations has slowed, there is a movement to support a country's overall health system development and ensure that disease-focused interventions are sustainable [7, 8]. And Ebola has shown that money is not necessarily the binding constraint to meeting population health needs in a sustainable manner, resilient to both health and economic shock [9]. Liberia, Guinea and Sierra Leone, for example, received a combined US\$ 787 million (in current PPP) from external donors in 2013 alone [10]. Some reviews have highlighted that despite these investments, fragmented global health systems and ad hoc institutions, laws and strategies that did not function coherently left these countries without capacity to respond to the crisis [11]. They also left donors re-examining how they should provide their support if effective capacity to identify, stop, and prevent future health threats is to be ensured [12].

This combined focus on supporting resilient and strong health systems, along with the changing epidemiological profile of LMICs, has implications for financing and organizing health systems. For decades, countries have targeted interventions for specific diseases or groups primarily

1 Particularly goal 3.8: "achieve universal health coverage (UHC), including financial risk protection, access to quality essential health care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all".

through *health programmes* defined by a priority client, disease, location, or available technology, with the purpose of implementing specific activities. This organizational approach has been magnified by donor assistance for priority areas that often reinforced “verticalization” of health systems: powerful programmes operating largely autonomously from one another in seeking to optimize the achievement of their “separate”, specific objective, but without sufficient reference to other objectives [13, 14].

This changing global and country-level agenda requires a system-wide perspective [15] that looks to expand and sustain coverage for priority interventions through the efficient allocation and use of resources across the entire health system and not just within one particular programme or set of interventions, as explained in Box 1.

Importantly, because the causes of inefficiencies are country-specific, reform has to be tailored to the way health programmes are articulated in each health system. The

Box 1: Foundations of the System-Wide Approach

This approach is based on the following principles:

- a) Taking the entire health system and its objectives as the **unit of analysis**. National health policy makers are increasingly concerned with the overall performance of the health system. The “success” of a given programme needs to be assessed also in terms of its contribution to overall system progress towards UHC, with full consideration of its implications (positive or negative) for other programmes and the wider health system. Thus, the analysis of programmes’ efficiency must be embedded within the health system.
- b) Unpacking the question “**what is a health programme?**” Simply referring to “health programmes” sets up a potentially confrontational horizontal-vertical debate that does not support productive dialog on sources of inefficiencies and potential solutions. Indeed, the composition of programmes varies. It may involve a focused strategy combined with monitoring the delivery of the relevant services and the outcomes of interest. At the other extreme, it may include its own arrangements for service delivery, financing, human resources, facilities, information systems, and procurement. Thus, to consider reforms to any programme in a given country, an effective diagnostic requires disaggregation into its component parts. This can shift the debate from “programmes vs systems” to a more useful discussion on the specific elements (e.g. information or procurement systems) that may be duplicated or misaligned between programmes or with the wider system. In turn, dialog can be opened on opportunities for synergies through consolidation or coordination of certain elements. This is consistent with what has been termed the “diagonal approach” (16).
- c) Ensuring **accountability for results**. Improving efficiency does not mean simply cutting costs or saving money. It has to do with getting better results from available resources. In the context of health programmes, the “result” can be framed as **increased effective coverage** – reaching more people who need the programme-supported intervention, and/or improving the quality of this intervention. This focus on results will contribute to a more constructive dialog with health programmes and the rest of the health system.

intent of this approach is not to promote a purely integrated system. There may be a clear rationale in certain instances to keep some programmatic functions separate, yet there is also a need to assess what functions can be consolidated while concurrently ensuring accountability for results.

1.2. WHAT IS A SYSTEM-WIDE APPROACH?

The starting point for this approach is the definition of a health system and its boundaries. As the *World Health Report 2000* (WHR 2000) specifies, “a health system consists of all organizations, people, and institutions producing actions whose primary intent is to promote, restore, or maintain health” [17]. While this definition excludes factors that might influence health, such as education, housing, water and sewage systems, among others, it leaves space for health system features to vary across settings and countries [18-20]. Having set these boundaries, the framework then incorporates the notion that every society needs to systematically develop sets of specific, repeated activities and tasks (“*functions*”) intended to achieve the desired health system goals. This functional characterization laid out in the WHR 2000 shares with other health system frameworks, including the “building blocks” and “control knobs” frameworks, the notion that a health system is fundamentally about activities that are aimed at maximizing the attainment of a set of goals [21-23].² This function-and-objective based approach to conceptualizing

a health system, combined with the system-wide unit of analysis, provide the basis for the approach described in this paper.

Health system, and relatedly health programme, *goals* can be broadly characterized as falling into three categories: (i) achieving health gains, and doing so in an equitable way; (ii) protecting people financially against the impoverishing consequences of health care costs and distributing equitably the burden of funding; and (iii) responding to people’s expectations about how they should be treated [17, 22].

One of the most important ways to make progress on health system goals is to increase *effective coverage*, which is thus an intermediate objective in the framework. Effective coverage refers to the probability that someone who needs an intervention will get it and have their health improved as a result [24]. Thus it encompasses the objectives of reducing the gap between the need for and use of services, as well as improving the quality of those services – which in turn comprise (along with financial protection) the objectives embedded in the definition of Universal Health Coverage (UHC) [15]. By using resources more efficiently, it is possible to reach a higher level of goal attainment. Hence, improving efficiency is another intermediate objective through which health system performance (including progress towards UHC) can be improved.

Improving efficiency and increasing effective coverage are at the heart of the approach we take in this paper. In a sense, the key question to consider is this: how can shortcomings in effective coverage be explained by inefficiencies in the way the health system functions are organized? Or put more positively, what inefficiencies

2 These differences in terminology do not impact the logic of this approach or the underlying health systems framework. The same can be said about the very names of the specific functions, which may vary across frameworks (e.g. stewardship versus governance).

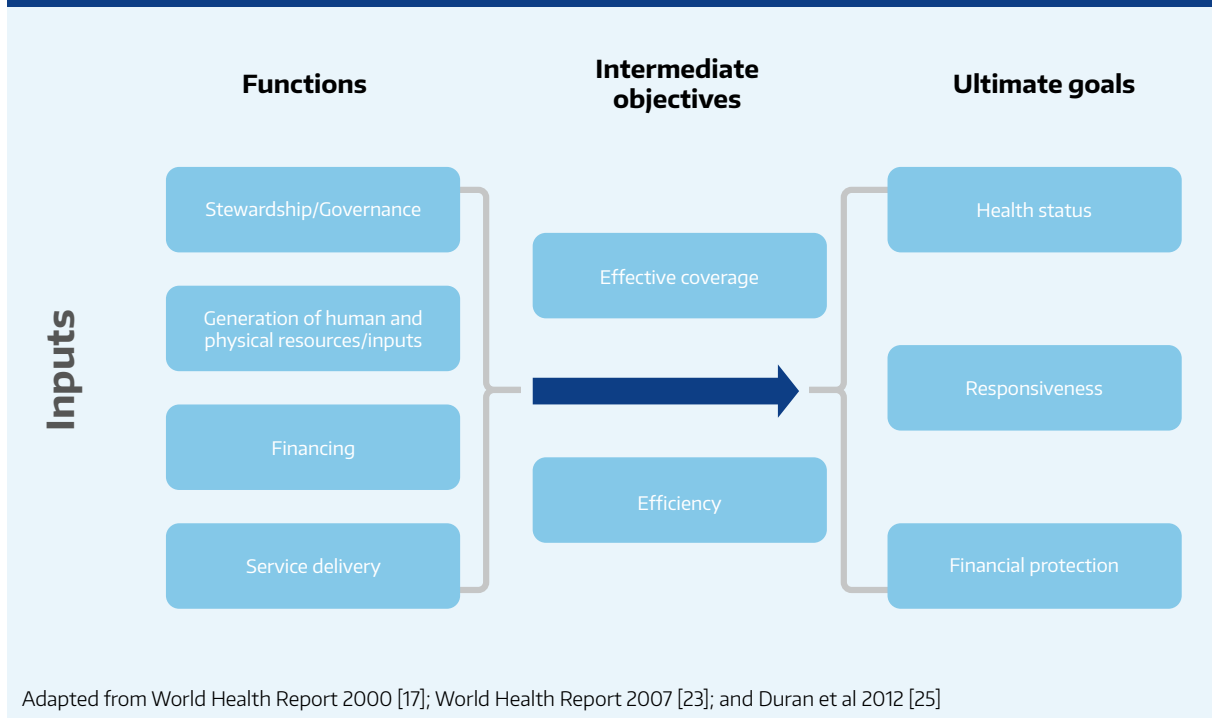
need to be addressed to enable increased effective coverage with priority interventions to be sustained? The critical conceptual distinction drawn in this approach is to decompose health programmes into their functional components, embedding them within the overall health system, and then analysing their organization and functioning across the system rather than just within the programme. This is the perspective of a national health ministry rather than a “programme manager”, which is most relevant for national decision-making. This approach enables identification of “cross-programmatic” duplications and overlaps (e.g. separate information systems for each programme) that can both constrain the level of effective coverage that could potentially be achieved by the health system, and which may also harm effective coverage through fragmentation of effort (e.g. lack of coordination of effort across different health programmes for a patient with multiple health needs).

Specifically, all health systems perform four basic *functions*, each with a number of sub-functions that are interconnected:

- 1. Service delivery:** The way that specific inputs are combined to produce and deliver services to individuals (i.e. personal health care services) and groups (i.e. population-based services). This also encompasses how and where services are delivered, as well as their management and organizational arrangements.
- 2. Financing:** The way in which revenues are raised, accumulated into fund pools, and allocated to providers. This also involves the definition (explicitly or implicitly) of the entitlements and obligations of the population, often referred to as the benefits package.
- 3. Generation of human and physical resources/inputs:** The way core inputs such as personnel, equipment, technologies, technical and managerial knowledge, physical resources and facilities, supply chains, and information, among others, are produced and made available.
- 4. Stewardship/governance:** The way the health system is run and how institutions involved in it, both public and private, are overseen. This encompasses (i) setting, planning, and monitoring the direction for the health system; (ii) regulating the system and the actors within it; and (iii) collecting and using the related intelligence..

The framework described here and presented in Figure 1 can be used to understand how the overall health system, and the programmes that are a part of it, is organized to act upon the intended ultimate goals. By decomposing health programmes into their functional parts, possible misalignments that have an impact on the achievement of ultimate programme and system objectives can be identified. By doing this across many health programmes within a country, areas of programmatic duplication and overlap can be highlighted. Importantly, as indicated, a health programme does not exist in isolation from the rest of the health system, and this system-wide unit of analysis (described in Box 1) means that the diagnostic efficiency analysis must look *across* as well as *within* programmes. For example, if each programme has its own procurement or information systems, or its own contracts with providers, or its own plans and budgets, or its own distinctive personnel arrangements, all of which are not coordinated or even discussed with one another, a large burden will be

Figure 1: Health Systems Framework: from functions to goals, through intermediate objectives



placed on the system. Beyond the impact this fragmentation might have on the patient, these organizational arrangements leave no space to take advantage of possible economies of scale or scope across the system. This paper thus lays out the conceptual process that should be followed to conduct cross-programmatic efficiency analysis.

1.3. STRUCTURE OF THE PAPER

After this introduction, this paper is structured along the process meant to guide analysts to identify and subsequently help address cross-programmatic inefficiencies, in three phases:

- *Phase 1: Programmes selection and rapid appraisal*, to choose the programmes to be assessed and analyse their

performance relative to ultimate goals (see Figure 1) as well as those of the rest of the health system;

- *Phase 2: Analysis and diagnosis* to identify areas of overlap, duplication and misalignment that are important sources of inefficiency, which could be the target for a reform agenda;
- *Phase 3: Option building* to define the policy options available for policymakers and authorities in relation to the identified inefficiencies.

A number of indicative steps are laid out as a part of each phase to help apply this overall health system perspective in a stylized “typical” country. It is not the purpose of this paper to define in detail the specific outputs from each of those phases and steps, as each involves qualitative analysis that examines policies and programmatic nuances which will vary greatly across countries.

Importantly, this paper is not meant to be a self-implementing “tool”. Rather, it is meant to provide the conceptual and technical framework to motivate a way of thinking and approach to analyzing technical efficiency across health programmes, using the overall health system as the unit of

analysis. This approach was piloted in 2 countries (Estonia and South Africa) during 2016. The experience and results of those experiences will serve as a basis for a more refined guidance manual on how to diagnose inefficiencies, as well as direction on how to develop options to address them.

2 EFFICIENCY ANALYSIS APPROACH

Diagnosing inefficiencies in the delivery of priority interventions associated with health programmes and their likely causes is critical for decision-makers. Both health and finance authorities need to understand how to get more value from the money spent on various health programmes. While a separate analysis could be done for each sub-function, the following key indicative or guiding questions are pertinent across sub-functions:

- Where are there duplications, overlaps and misalignments in the functions and specific sub-functions across health programmes? What is/are the main reason(s) for that?
- How are these duplications, overlaps and misalignments impacting the ability of health programmes to reach their target populations with their outputs, and in so doing impact the attainment of ultimate goals?
- Are there particular programmes in which there is more overlap than others? In what functions and sub-functions? What form does this take, and with what consequences?
- Who are the decision-makers for each of the programmes where there are duplications and overlaps?
- Are there any problem areas that clearly stick out from the analysis (for example, several parallel drug procurement arrangements, information systems, or the use of unnecessarily expensive inputs)?
- From this system-wide perspective, what are the main inefficiencies in the organization and operation of health

programmes that could be the focus of a reform agenda? What could be the best "entry point" in terms of "low hanging fruit"? Would this require new investment, e.g. to strengthen a national information system that could meet the needs of all health programmes?

The core of this diagnostic approach to answer the above questions is a general series of steps that are presented in three phases. The paper also presents indicative guiding questions to facilitate the analytical process. This is described in the rest of this section, including illustrative issues pertinent to each function that can result from an overly fragmented programmatic approach and explain the possible output of each of the steps.

2.1. PHASE 1. PROGRAMMES SELECTION AND RAPID APPRAISAL

To begin the analytical process, the scope of the overall analysis based on country need, capacity and demand should be determined. This involves identifying “segmented health programmes” that are partially or entirely ‘separated’ from the rest of the health system in their financing, staffing, facilities, regulations, and other characteristics. This identification process should be done in collaboration with those involved in the programmes themselves, as well as with parties interested in broader system-level reform issues. In other words, for example, both programme managers

Box 2: Indicative guiding questions to identify programmes to be analysed

- Which health programmes are priorities for political leaders in discussing health reform (and why?)?
- How large are these health programmes relative to each other and to the overall health system? What share of the government budget is dedicated to each programme?
- Which programmes attract large donor funding?
- Which health programmes are experiencing a possible decline in external assistance as a source of financing?
- Which health programmes are not delivering sufficient results in terms of health outcomes and outputs?

and senior Ministry of Health staff should be involved. Box 2 provides a set of questions that can be useful in guiding this identification process.

The second step in the preparatory phase is to **analyse outcomes and outputs of both the overall health system and the health programmes of interest with respect to the stated goals and objectives**. This step is necessary to ground the subsequent analysis in the objectives of the programmes themselves. As presented in Figure 1, any potential changes to the health system functions will have an impact on outcomes. Therefore, proposed reforms derived from the cross-programmatic efficiency analysis should ensure that the performance these outcomes is increased, or at a minimum sustained.

A targeted rapid appraisal should identify and describe the respective purposes and goals of each health programme (health outcomes, target populations/risk groups they intend to serve, financial access to services, quality of services, responsiveness to patient needs and expectations, etc.). Ideally, this step would include a

comparative quantitative analysis of key health outcomes, outputs and expenditure patterns both in relation to within country and regional/income based comparators, as well as over time. A useful example of this type of rapid appraisal can be found in WHO's General Health Statistical Profile (in the Global Health Observatory's General health statistical profiles that can be found on each country's page through this link: <http://www.who.int/gho/countries/en/>).

This step also involves **identifying the key stakeholders with decision-making power over how functions are financed, organized and operated, both in the programmes and in the overall health system**. This is not meant to be an exhaustive stakeholder analysis. Rather it should involve a qualitative assessment of the key persons, institutions and interest groups that are involved in each of the programmes of interest, as well as their role in the health system/programme, relative position on any potential reform to the current system, and their power or influence in the health system [26]. Box 3 provides a set of questions to facilitate both the rapid appraisal and stakeholder analysis process.

Box 3: Indicative guiding questions to conduct targeted rapid appraisal and stakeholder analysis

- How does the overall health system perform with respect to the three core health system goals (level of and equity in health status, financial protection, responsiveness)?
- What are the stated goals and objectives of each programme? Are they clearly formulated?
- How do these programmes perform in relation to these stated goals? Particularly, in comparison to other outcomes within the health system and with comparator countries/ regions?
- Who are the target populations meant to be served by each programme? What is the nature of entitlements related to each programme? Do they have distinctive, specific attributes (e.g. marginalized groups)? How strictly are they enforced? Do different programmes focus on the same population groups, at least in part?
- Who are the key stakeholders with decision-making power in each programme? What are their positions and relative power in relation to potential reform and the health system overall? Are they stakeholders from the government, private, NGO sectors or external donors, etc.?

2.2. PHASE 2: ANALYSIS AND DIAGNOSIS

This phase is the core of the analysis, as it is here that critical misalignments, overlaps and duplications within and across programme functions are to be identified. First, the four key health system functions should be described and mapped for both the overall health system, as well as within and across each health programme of interest. This process will inform whether the various functional responsibilities in each programme are segmented from, or integrated with, other programmes, or with the rest of the health system. The assessment does not necessarily need to be exhaustive, but should ensure that each sub-function (see below for details) is considered with the aim to identify areas of potential duplication, overlap and/or misalignment. To help with this, each function and related sub-functions (see Figure 2 for list) are described below, along

with indicative questions and guidance as to how to conduct this mapping and analysis.

SERVICE DELIVERY

The first step in mapping a programme's service delivery function and sub-functions is to identify what type of services it delivers. Box 4 lists provides the sub-functional categorization of service delivery, with indicative questions to guide related analysis. For purposes of mapping, the "type of services" should be characterized along two dimensions: (a) whether the services are delivered to individuals (personal health services) or entire populations (population-based services), and (b) whether the benefits from the delivered services accrue just to the person receiving them ("private goods", in the parlance of economics), or extend beyond to others (services with "externalities") or the entire population ("public goods") [27]. For example, some services produced as part of health programmes are population-based public goods (e.g. treatment of polluted

Figure 2: Sub-function description of health programmes

Service production	<ul style="list-style-type: none">• Type of service• Type of organizational arrangement• Type of governance/management
Financing	<ul style="list-style-type: none">• Revenue raising• Pooling and flow of funds• Purchasing (provider payment)
Generation of human and physical resources/inputs	<ul style="list-style-type: none">• Human resources• Facilities• Technologies/medicines/supplies• Information systems
Stewardship/Governance	<ul style="list-style-type: none">• Planning/strategizing• Regulating• Intelligence

Box 4: Indicative guiding questions to map service delivery functions and sub-functions

- To whom are the services delivered?
 - To groups or the entire population (e.g. vector control, billboards)
 - To single individuals/clients/patients (e.g. treatment with pills, personal advice on lifestyles)
- Characteristics of benefits
 - Benefits accrue largely to the individual received services (“Private goods”, e.g. a surgical operation)
 - Benefits accrue to all (“Public goods”, e.g. air pollution control)
 - Benefits extend beyond the individual receiving the service but not the entire society (services with “positive externalities”, e.g. communicable disease treatment)
- Organizational arrangements
 - Separate facilities and providers: facility and provider are specialized to provide care for a specific disease, population group or intervention (e.g. separate facilities and providers for the services associated with the programme)
 - Integrated facilities and providers: facility and provider serve more than one given disease, intervention, or population (e.g. integrated service delivery, incorporating the services associated with the programme and other health services as well)
 - Mixed units: specialized units that are housed in a coordinated/integrated facility or network.

waters, health education programmes through the media or vector elimination programmes) but the majority are personal services with positive externalities, i.e. the consumption of which has benefits beyond just the person receiving them

(e.g. immunization or infectious disease treatment) [27].

The distinction of these two dimensions is particularly relevant to the “unpacking” of health programmes. The extent of the

benefits from services – whether they have broad externalities or are even public goods – has implications for policy regarding the extent to which they should be subsidized in order to ensure that they are used [28]. This is a common rationale for excluding treatment of tuberculosis (TB) or sexually transmitted infections (STIs) from any user fees, for example. However, the extent of externalities is not, per se, a rationale for separate service delivery arrangements (or other parallel arrangements). Instead, it is the distinction between personal and population-based service delivery characteristics that should be the driver of decisions on the organization of services. Establishing separate delivery arrangements for different types of individual services can generate care coordination problems. For example, by having separate facilities for TB and HIV can mean that a patient has to seek care in multiple locations, from multiple doctors, who do not speak or coordinate their treatment approaches.

The service delivery function also deals with how services are produced. This categorization involves issues related to modality and “size” of facility, the “business model” and the ways in which services are organized and delivered concerning technology concentration, facility specialization or level of care at which programmatic services are delivered. Mapping at what level of care prevention and treatment activities take place (e.g. primary versus secondary care) and whether specialists are involved will provide important insights into the overall organization of the programme itself.

FINANCING

Health financing is defined as the process by which revenues are raised, accumulated

in fund pools and allocated to service providers. Responsibility for implementing these three financing sub-functions (revenue raising, pooling and purchasing) may be integrated into a single organization or implemented by separate entities. There may also be different financing arrangements (“schemes”) for different population groups within a country. And similarly, health programmes often have their own, distinct financial flows, often but not always linked to separate service delivery arrangements. While a general concern in health financing policy is to reduce fragmentation in pooling to enable greater redistribution and protection against financial risk, fragmentation in funds flows (from pooling/purchasing to service providers) is an important source of cross-programmatic inefficiency as well. Box 5 lays out the three health financing sub-functions and related questions that can facilitate a better understanding of the way in which they are articulated in each health programme to identify cross-programmatic inefficiencies.

In general, the cross-programmatic efficiency challenges related to financing arise more from pooling, purchasing, and the overall flow of funds than to revenue raising. However, separate funding sources for each programme that are not coordinated/integrated with the overall health sector budget can jeopardize the sustainability of programmatic activities in the case that funding sources change or shift, particularly related to donor assistance. And, when these different sources are linked to different pools and purchasers, these may also introduce distortions, such as paying more to staff serving certain programmes as compared to those working in the “general” health system.

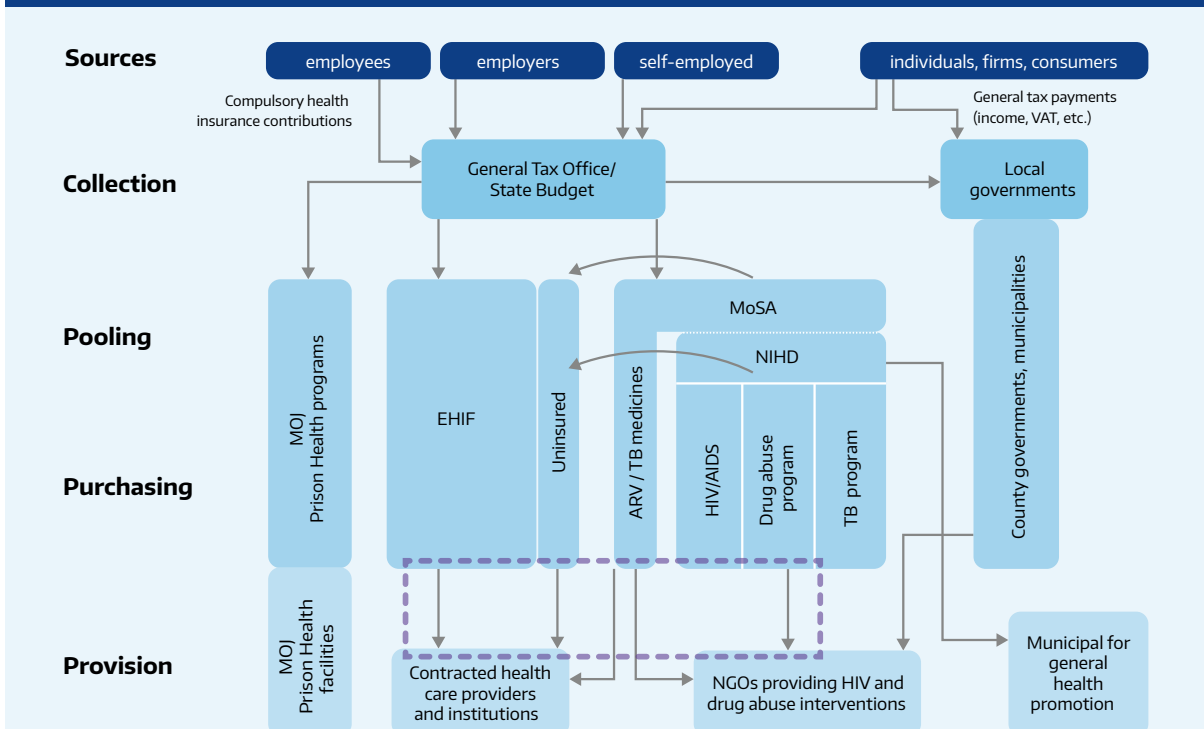
Box 5: Indicative guiding questions to map financing functions and sub-functions

- Revenue raising
 - What are the sources of funds for the health system? Do some programmes have specific, distinct sources?
 - Do any programmes have their own distinct revenue collection arrangements?
 - Do out-of-pocket payments play a significant role for any of the services supported by health programmes?
 - Are any revenue sources (most notably external donor assistance) time-bound? Or is the timeline uncertain?
- Pooling
 - What are the overall arrangements for accumulating prepaid revenues for health on behalf of some or all of the population?
 - Are the funds for the services supported by each programme pooled separately, or are they merged together with funds for other health services?
 - Are funds for all of the inputs needed to provide the services supported by specific health programmes pooled separately, or are certain line items (e.g. staff salaries) merged while others (e.g. medicines) held separately?
- Purchasing of services/interventions
 - What are the means and methods used to allocate the prepaid resources from the pool to the providers for service benefits? How do they differ across programmes?
 - What incentives do providers face with respect to delivering services for a particular programme objective? Do these incentives differ by programme? What is the picture compare to the health system overall? Are the same providers (e.g. primary health care centres) confronted with different financial incentives from different programmes?
 - How autonomous are providers in their ability to respond to changing incentives?
 - Are programme-related services part of a common benefit package? Or are they considered in practice separately outside of a package of basic services?

Not only does redundancy in fragmented pools and fund flows lead to inefficiency through the duplication of administrative functions, it can also create distortions in input and service allocations and overall health system waste. For example, a 2006 study analysing financing for HIV/AIDS and drug abuse programmes in Estonia found that each programme had separate contracts with providers for their respective services. In effect, the system was designed to fund programmes in the hopes that these would reach clients, rather than more explicitly focused on reaching clients. As a

result, instead of pooling their funds and knowledge to reach the common clients, the HIV and drug abuse programmes used their vertical budgets to separately contract providers [29]. While in the short-term, ring-fencing resources can reliably direct funds to a particular programme, disease or intervention, it can have problematic consequences for coordinating services for people who need more than one type of intervention (as in the case of Estonia), and have a long-term distortionary effect on financing and the overall operations of the health sector by introducing rigidities that

Figure 3: Health Financing for HIV, TB and Drug Abuse in Estonia, 2016



Source: authors

Box 6: Estonia – “follow the money” to identify duplications, overlaps and misalignments

The figure below maps the flow of funds for the TB, HIV/AIDS and Drug Abuse programmes in Estonia as of 2016 [30]. The purple box highlights the duplicative and misaligned purchasing function related to HIV and TB services. The National Institute of Health Development (NIHD), which sits within the Ministry of Social Affairs (MoSA), is allocated funds to contract directly with specialists and NGOs to provide programme-specific services (including outpatient DOTS, voluntary testing and counselling, and case management). It does not provide funds to primary care physicians, who instead receive capitated payments from the Estonian Health Insurance Fund (EHIF), which provides coverage for 95% of the population. This dynamic means that incentives to prevent and treat HIV and TB-related conditions are focused at the secondary and tertiary levels or with NGOs. Therefore, there is a misalignment between policies around the important role of primary care in these issues with actual financial reimbursement.

This fragmentation also leads to duplicative purchasing arrangements in some instances between the NIHD and EHIF. While the NIHD has made efforts in recent years to consolidate its own contracts with providers, there has not been a similar move to coordinate contracts between NIHD and EHIF. Therefore, while the EHIF pays for a large share of HIV- and TB-related services through its role as payer for hospital in-patient services, this financing is not tracked or coordinated with the MoSA or NIHD. As a result, there is limited accountability for overall patient treatment progression and ultimate health outcomes due to a lack of coordination across providers.

do not allow resources to respond flexibly to changing population health needs.

To identify potential sources of duplication or misalignment in relation to financing functions, a useful approach is to “follow the money”. This involves mapping the flow of funds, from revenue sources through pooling and purchasing agencies to the providers of the services associated with the programmes. This can be done for programmes that serve similar or overlapping target populations, and also with the main funds flows in the wider health system, as relevant. Key areas of weakness can be identified that had not been previously accounted for, or noticed, by programme manager or that evolved in a distortionary way over time. (see Box 6 for 2016 Estonia example).

GENERATION OF HUMAN AND PHYSICAL RESOURCES/INPUTS

Health workers, technology, information, supplies, medicines, facilities and other

inputs or groups of inputs such as procurement systems and supply chains are vital resources required for a health programme to operate. How these inputs are created, deployed and organized have critical implications for the way in which health services are produced and used, today and in the future. Box 7 presents a list of questions that can help to frame the analysis of duplications and misalignments across inputs.

For example, with respect to human resources, a ministry of health will have to balance having staff with the necessary skills in place to meet programmatic priorities, with the need to ensure the viability of other services. As programmes are often better-resourced due to political popularity or donor support, they may provide attractive terms of service that create disparities between those offered elsewhere in the public sector. As shown in some Central American and African experiences, different terms of service offered through Global

Box 7: Indicative guiding questions to map generation of human and physical resources/inputs functions and sub-functions

- How are human resources trained, retained, distributed, used, and remunerated? Are there sufficient health professionals to cover the core health needs? Are there pay differentials across programmes and with other parts of the health system?
- Are facilities available of sufficient quality to meet patient needs irrespective of the programme? Are there facilities that are not operating at full capacity?
- To what extent is service provision within and/or across programmes affected by the segmented availability of technology and supplies?
- To what extent are information systems used for/by the programme coordinated with other information systems? Does their output facilitate decision-making in relation to the other functions (service provision, financing, stewardship/governance)? Or across disease and population groups? What is the comparative situation in other parts of the system?
- How many supply chains are there (e.g. procurement, storage, distribution of consumables, pharmaceuticals) within and across health programmes?

Fund-supported HIV and TB programmes not only made it difficult to integrate those health workers with the broader health workforce but also called into question the very sustainability of the services supported by these programmes themselves once donor support was no longer available [31]. This over-specialization based on programme objectives can leave workers responsible only for delivering programme-specific interventions and failing to prevent, detect or treat co-morbidities. This dynamic can also lead to preferences and disparities across diseases. For example, anecdotal evidence from South Africa has highlighted that a patient may receive better care if he has HIV and cancer rather than cancer alone because the HIV programme is better-resourced with dedicated staff for their patients. A similar logic applies to the physical infrastructure. Whether health programmes work with existing buildings or construct new facilities has long-lasting impact on how programmatic resources are channelled, coordinated and integrated with the rest of the health system. The sustainability of facility financing may be in question due to the cyclical nature of programmatic funding, particularly when donors are involved.

From an input perspective, there are particular concerns with respect to having

multiple and fragmented information, supply chain and procurement systems that each pertain to a specific disease or intervention. These duplications can be costly to the system as a result of financing and governing multiple systems. Similar to the “follow the money,” exercise described above, to identify medicine-related inefficiencies a “follow the drugs” exercise can be undertaken, which is described in Box 8.

In general, the way in which health programmes generate and organize inputs raise similar efficiency concerns, whether the inputs are drugs and supplies, buildings, procurement or information systems. For example, in South Africa there are separate information systems for TB and for HIV. Practically, this means that information for a patient with both HIV and TB will be manually inputted into both systems separately and that the information will then be analysed and monitored by different people in an uncoordinated manner. There may be a short-term rationale to keep inputs ring-fenced to quickly roll-out and target priority interventions. However, in the longer-term separate structures often contribute to gross inefficiencies through overlap and duplication and can also divert resources away from other important population health needs.

Box 8: “Follow the drugs”: input-related cross programmatic analytical approach

“Following the drugs” by mapping the flow of medicines can also highlight fragmentation in the system. This process begins with considering the medicines that are most relevant to a particular programme (i.e. ARVs for HIV, Malarone for malaria, or Isoniazid for TB). An analyst can then map the source of financing, procurement system, supply chain, and ultimately how and where the medicines are dispensed/ obtained by the patients in reality. Similar to the mapping exercise for financing, this process can provide critical insights into where medicine management systems diverge and potentially duplicate functions [32].

STEWARDSHIP/GOVERNANCE

How health programmes are ‘run’ determines their place within the broader health system and to a large extent the effectiveness with which they are able to achieve their core outcomes. Critically, the other three health system functions will be directly impacted by programmatic stewardship and governance dynamics, such as, (i) whether programmatic plans are integrated/coordinated with broader health sector plans and policies, (ii) if programmes have a distinct regulatory environment separate from that of the rest of the health system, and (iii) if critical information is kept private or separate from other system information. All three issues may either facilitate or make it difficult for the public sector to coordinate or even track their activities, particularly where the accountability for results and the efficient use of resources is narrowly framed within the programme itself without reference to the rest of the health system (see examples presented in Box 9).

The autonomous governance of programmes can be a result of priorities set at the global level. For example, global programmes to

eradicate specific diseases, such as polio [33, 34], are often replicated at national levels and carry with them separate administrative arrangements and budgets. This fragmented approach can fail to take advantage of information sharing opportunities. In recognizing this issue, international agencies recently requested that the information generated by specific disease programmes should be spread throughout the entire health system [35]. Box 10 provides a set of questions to facilitate mapping and understanding how the stewardship/governance function is articulated within and across health programmes and the broader health system.

SYNTHESIZING THE CROSS-PROGRAMMATIC INEFFICIENCY ANALYSIS

The functional mapping exercise is the foundation to then **identify the critical areas of misalignment, duplication and overlap across the group of programmes and with the wider health system**. This requires a judgment as to “what really matters” in terms of functional inefficiencies across programmes and their consequences for the performance of the overall health

Box 9: Examples of stewardship/governance inefficiencies

- A strategic plan for HIV that is not integrated or coordinated with plans for the broader health system can fail to take into account issues of co-morbidities, such as diabetes or cancer care, and thus leave the programme ill-equipped to deal with the full range of patient needs.
- A regulatory framework that only focuses on TB prevention and treatment and is not coordinated with the broader health system regulatory framework may create misalignments or incongruences if standards are applied differently.
- Insufficient coherence across accountability frameworks can mean that a provider may face financial incentives that encourage substantially more time to be devoted to routine treatment of HIV as compared to that for diabetes.

Box 10: Indicative guiding questions to map stewardship/governance functions and sub-functions

- How are data generated, managed and used by programmes? Do providers complete separate forms for (each) programme, or is the information included as part of a more integrated data collection instrument? Are the programme-relevant data held separately by the programme, or is it simply made available to programme managers by the unit that manages the national health information system?
- Are programme data widely accessible and transparent to the public? Are they available upon request or published on the web?
- How is programme planning coordinated with planning for the entire health system? At what level and how do programme and health system plans come together? How makes the plans for programmes? The health system?
- What are the predominant types of governance arrangements for health facilities/providers within and across programmes, namely:
 - “hierarchical bureaucracy” with tight control and limited freedom of decision making at provider level, or
 - “direct market approach” with relatively unregulated interaction between patients and providers plus little external guidance or control, or
 - autonomous governance, often involving contractual relations with private or public providers
- What type of regulation is used to control health programmes (state laws, by-laws, decrees and local rules, etc)? Are there key differences with the rest of the health system?
- What accountability mechanisms are in place to enable results in each programme (audit, annual reports, confidential dispatches, etc.)? How are these accountability mechanisms used? Are there key differences with the rest of the health system?

system. Some key examples of cross-programmatic inefficiencies and their possible impact on patient care are presented in Box 11. Each function and sub-function should be analysed holistically across all priority health programmes and the broader health system. The key question is whether the way that responsibility for implementing the function is organized and operates helps the health programme and the health system at large maximize intended outcomes, considering the potential losses from cross-programmatic overlap. The mapping is intended to reveal potential sources of inefficiencies, particularly those arising

from misalignments in functions and sub-functions within and across programmes. This identification process assumes that a population can be better-served in its progress towards UHC by streamlining the implementation of some sub-functions, improving coordination, and strengthening accountability for results.

Conducting this cross-programmatic analysis will involve **“zooming out” from the micro-level analysis presented in the previous step to examine how each of the sub-functions fit together within each programme and in the overall**

Box 11: Examples of cross-programmatic inefficiencies

- Analysing “patient pathways” is an effective way to detect cross programmatic inefficiencies. For example, in the case of co-morbidities (e.g. TB and HIV or HIV and diabetes) there could be situations in which a patient would require several visits to have a series of laboratory, visual and other tests performed, or selected drugs collected due to fragmentation in service delivery by programme. The several visits could be costly to a patient both from a payment and time perspective, as well from an effectiveness perspective in the case of uncoordinated care across providers. More examples include:
 - TB-specific health facilities where patients bypass services at the primary health care level and seek treatment directly with TB specialists can lead to inefficiencies due to an over-reliance on costly services and poor coordination across providers and co-morbidities.
 - Salary top-ups for staff who only work on TB or HIV interventions that could lead to under-provision of non-TB or non-HIV services for patients receiving treatment in that facility.
 - Over-segmented mother and child services that are not connected with adolescent health activities that are recognized as a part of PHC can lead to an under-provision of services for this population.
 - Programme-specific information systems that do not coordinate across providers can mean that patient-related data is not effectively tracked or used to create a coherent and coordinated package of treatment.

system. The list of indicative questions at the start of Section 2 of this paper (page 7) should act as a guide in approaching this cross-programmatic analysis. That is, evidence should be provided about how functions and sub-functions integrate and relate with one another. The key analytical task involves **prioritization to identify the critical areas of duplication, overlap and misalignment that impact the ability of a programme, as part of the health system, to meet its objectives.** This step brings all of the functional information gathered in the previous steps towards a system-wide efficiency analysis in the organization and operations of the identified health programmes.

In summary, this exercise is expected to provide a cross-sectional or “horizontal” view

of the health programmes of interest across the health system on a function-by-function basis. **The output of this analysis will be a list of critical areas of duplication and overlap across the health programmes of interest, as well as with the rest of the health system.** This set of issues should be prioritized based on the size and scope of inefficiency created, as well as the technical feasibility in being able to address it through a targeted policy response (see below).

2.3. PHASE 3: OPTION BUILDING

The last phase involves **developing targeted and actionable policy options to address the sources of the identified cross-programmatic inefficiencies and**

ensuring accountability for results. This final phase is meant to bring the entire analytical process together by building a set of policy options and recommendations about how to begin to address the identified sources of inefficiency. The entire functional analysis is meant to detect inefficiencies at a sufficient level of granularity that enables a specification of a practical path to reform. There should be an explicit prioritization exercise that helps to sort potential interventions based on both technical and political feasibility. In general, options should be framed in terms of cross-cutting functions rather than programmes. For example, integration of formerly parallel information and procurement systems might be a particularly relevant policy option in the case of programmes transitioning from donor assistance. Similarly, an effort to build capacity within primary care to test, treat and prevent communicable diseases can be done as part of an overall primary care reform effort. Or the merging/streamlining

of parallel drug procurement schemes into a single supply chain could be suggested in order to save money. Again, a set of indicative questions are listed in Box 12 to help guide this option building process and to prioritize interventions.

Critical to this step is that the identified options are **targeted and actionable**. Because the entire analysis is meant to be done with actors from different health programmes and the rest of the health system, these options should emerge as part of an overall consultative process. **Each policy option should also be clear on the source of inefficiency that is targeted, the intended impact on outcomes, the stakeholders involved (and particularly those in charge of implementing the proposed policies), and the proposed process for change as a way to ensure that any consolidation of functional responsibilities will “do no harm” to the objective of improved effective coverage**

Box 12: Indicative guiding questions for policy option development

- What source of inefficiency is targeted?
- Which programmes and broader health system actors/institutions are involved?
- Why is that source and related policy response a priority for the health sector?
- What is the specific policy response expected? Through what levers will change be affected?
- How feasible are the concerned changes in political and operational terms?
- Which stakeholders will be directly and indirectly impacted by proposed reform? What is their position relative to the proposed reform and their power to either support or block it?
- What accountability mechanisms are proposed to ensure that coverage of priority services is either maintained, or preferably, increased?
- Based on the hypothesized effect of the reform, what outputs/outcomes should be beneficially impacted by proposed reform?
- How will efficiency gains be captured? Will savings or improved outputs be produced?

of priority interventions. All this should help ensure the necessary buy-in and support for any proposals that are put forward.

The output of this entire approach will thus be a set of targeted, feasible, and actionable priority policy interventions to improve both the efficiency and effectiveness of health programmes, using the entire health system as unit of analysis. Through implementation of

these policy options and recommendations, effective coverage for priority health services from the resources available to the health system should increase, and the overall efficiency with which those increases are achieved should improve. The interventions proposed may or may not involve new investments, but importantly, they should be reasonably acceptable for most key stakeholders through policy discussion and negotiation.

3 CONCLUSIONS

This paper presents an approach to conceptualizing and addressing inefficiencies arising from the way that health programmes operate within the context of the overall health system. It stresses the interconnectedness of programmatic activities through their health system functions. Our approach enables countries to detect and analyse duplications, overlaps and misalignments within and across programmatic activities and identify reforms that can improve the efficiency of achieving programmatic objectives within the overall health system.

To apply this approach, countries must map the organization of each health system function within each identified programme, and then review these across the programmes and the rest of the health system, as a means to identify opportunities for efficiency gains. By maintaining simultaneously critical accountability mechanisms, health programmes, and as a result broader health systems, can be brought into alignment with their ultimate objectives and have a gradual, non-confrontational process to shape the response while ensuring their efforts contribute to sustainable progress towards UHC.

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For additional information, please contact:

Department of Health Systems Governance and Financing
Health Systems & Innovation Cluster
World Health Organization
20, avenue Appia
1211 Geneva 27
Switzerland

Email: healthfinancing@who.int
Website: http://www.who.int/health_financing

