

IMPROVING HEALTH SYSTEM EFFICIENCY

Reforms for improving the efficiency of health systems: lessons from 10 country cases

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1

INTRODUCTION

Universal health coverage ensures affordable access to high-quality health services for all; this will inevitably require governments to find additional budgetary resources and therefore to increase the fiscal space for health. While there are a number of ways of increasing health sector resources, such as mobilizing additional domestic resources when the macroeconomic conditions are conducive, increasing the priority of health in the public budget or relying on donor aid, recent attention has been directed to increasing the efficiency of the use of health resources. This is due partly to the fact that countries are increasingly obliged to contain growth in health spending as a result of rapidly ageing populations, growing burdens of noncommunicable disease and co-morbid conditions, technological progress and rising population expectations (1). In addition, fiscal crises in advanced economies and overextended governments in low- and middle-income economies make efficiency in health care delivery a pressing concern globally.

As highlighted in the 2010 *World health report*, efficiency is critical to sustainability: progress towards universal health coverage will require not just more money for health but more value for money. It was estimated in the 2010 *Report* that 20–40% of all resources spent on health are wasted. The *Report* identified 10 main sources of inefficiency in health care systems. For example, huge inefficiency is seen in the use of medicines, with under-use of generic medicines in favour of higher-margin, profit-making drugs, inappropriate and ineffective prescriptions and substandard or counterfeit products. An inadequate, costly mix of health workers, infrastructure and health services that fail to meet population needs are other sources of inefficiency. The dearth of alternative long-term care facilities can result in long hospital stays and maintains expensive hospital-based delivery. Limited transparency, accountability and appropriate compensation schemes lead to waste, corruption and other health system leakages (2). These are, however, merely categories, with no standard measures of causes, and the solutions are highly context-specific. Health systems are inefficient to varying degrees, and countries can and do undertake reforms to address the issues. Their experiences have not, however, been well documented.

As a follow-up to the 2010 *World health report*, WHO commissioned 11 country case studies in 2013, to review national attempts to improve efficiency with the use of various health system and financing reforms. The WHO regional offices were consulted to identify relevant country reform experiences, and this report is based on the resulting 10 country case studies, in Africa (Burundi, Democratic Republic of the Congo, Ethiopia and South Africa), Asia (China and the Republic of Korea) and Latin America (Chile, El Salvador, Mexico and Uruguay). The studies covered topics including reform of provider payment, organization of social health insurance, selection of health benefits, drug regulation and pricing and the training and skill mix of health workers. The goal of this report was to describe the efforts made in these countries to address various problems of efficiency in their health systems, synthesize the lessons learnt and provide promising directions for policy and future research.

Section 2 of the report describes the concept and definition of efficiency and outlines the framework used for analysing efficiency in the context of a health system. Section 3 summarizes the forms of inefficiency and the policy interventions described in each of the 10 country cases. Section 4 is a synthesis of the lessons learnt, and section 5 lists areas for future research.

2

DEFINITIONS, CONCEPTS AND FRAMEWORK

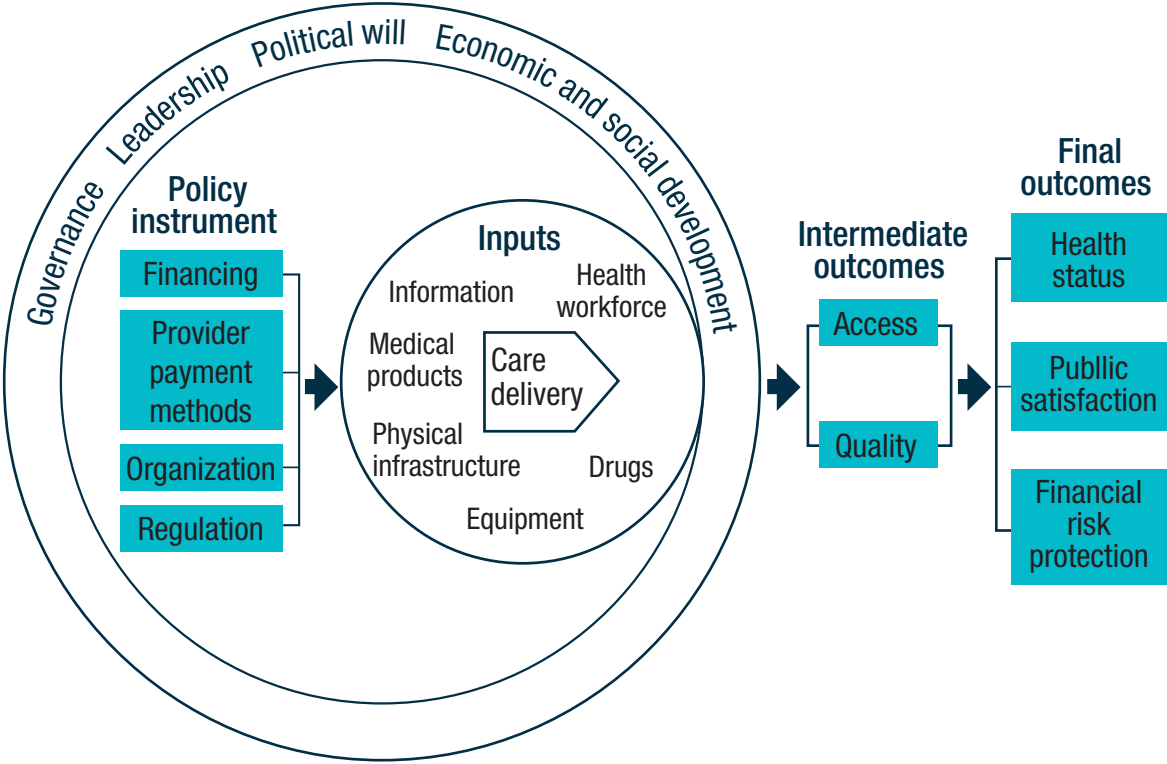
The two concepts of efficiency commonly used in economics are: allocative efficiency and technical efficiency. Allocative efficiency is allocating resources in such a way as to provide the optimal mix of goods and services to maximize the benefits to society; technical efficiency is using the least amount of resources or the right combination of inputs to produce a given mix of goods and services. In other words, allocative efficiency is motivated by “doing the right thing”, while technical efficiency focuses on “doing things the right way”. It should be noted that allocative efficiency is different from equity; no other allocation of resources can make at least one individual better off without making another individual worse off; an allocatively efficient situation may therefore be inequitable. Similarly, moving from an inequitable to an equitable distribution of resources can be suboptimal from the perspective of allocative efficiency.

In this report, we adapt these concepts to a health systems framework. In this framework, inputs, including funding, human resources, physical infrastructure, drugs, medical equipment and information, are all used to produce health goods and services. This ultimately leads to the outcomes, or benefits to society, which include improved health status, financial risk protection and public satisfaction (Figure 1). In this context, allocative efficiency means that there is no alternative mix of health goods and services that could increase the health system’s final outcomes over the status quo; technical efficiency means that there is no alternative use of inputs or input mix that could produce the same level of goods and services at a lower cost. For instance, if a nation could improve its health outcomes by reallocating resources from hospital care to primary care, that nation has not yet maximized allocative efficiency. If a nation could shift tasks among the workforce and matches skills with needs to produce the same level of outpatient visits and hospital admissions while spending less, that nation has not yet achieved technical efficiency.

On the left of Figure 1 is a set of policy instruments: financing, provider payment methods, organization and regulation. Together, they affect how resources are allocated to different goods and services and how inputs are used to produce a given set of goods and services. These are the tools that policy-makers can use to influence the allocative and technical efficiency of a health system. For the purposes of this paper, we define financing as encompassing decisions on how much resources to mobilize for health care, what risk pooling mechanisms to use, what benefit package to adopt, which populations to target, and what institutional arrangements to use for managing resources. *Financing* is one of the most powerful policy instruments for determining whether a country ensures affordable access to care, especially through benefit package designs and targeting of funding. *Provider payment methods* are the ways in which funders or purchasers remunerate providers. Each payment method has different incentives, motivating provider behaviour in their treatment choices to various degrees. This affects not only quality but also efficiency. *Organization* covers a broad set of policies for managing and coordinating the delivery system: for example, whether services are delivered by the public sector only or by both the public and the private sectors, whether competition is encouraged or whether the delivery of primary, secondary and tertiary care is integrated. *Regulation* involves setting the rules, standards and operating guidelines within which the system is meant to operate. These include approval of medicines, certification and accreditation of hospitals and licensing of the health workforce.

The scope and effectiveness of policy instruments are further influenced by macro factors, such as the socioeconomic development of a country, political will, governance and leadership structures.

Figure 1. A systems framework for analysing the efficiency of health care resource use



In practice, countries use a combination of policy instruments to effect change. The 10 country case studies summarized in section 3 reflect this reality. Burundi, Chile, Ethiopia and Uruguay introduced various financing policies (e.g. free care, insurance and a re-designed benefits package) to improve access to care in priority services (e.g. maternal and child care, primary care). They also introduced policies to ensure that the services were available to meet increased demand: Burundi and Uruguay by pay-for-performance incentives linked to the delivery and quality of a set of priority services, Ethiopia by training additional community health care workers and holding them accountable for delivering a well-defined service package, and Chile by regulation that requires public and private providers to offer the same mandated benefits package. Chile, Mexico and Uruguay proposed predominantly financing reforms, offering essential and standardized benefits packages according to the population’s epidemiological profile and the cost of disease in order to maximize health gains and financial risk protection. The Republic of Korea changed the organization of its national health insurance programme by merging multiple risk pools into a single national risk pool in order to reduce administrative costs. The case studies of China, El Salvador and South Africa provide examples of how countries have tackled problems in the drug supply chain as well as in physicians’ prescribing behaviour. China uses a combination of regulation and pricing, establishing an essential medicines programme and reducing the mark-up on retail drug prices at all primary care facilities. El Salvador and South Africa combine regulatory measures and organizational changes to control the rampant cost of medicines, in order to make them affordable for their populations. The Democratic Republic of the Congo reasserts its role in the health sector by better coordination and organization of financing from donors.

3

COUNTRY CASES

This section summarizes the forms of inefficiency found in each of the 10 case studies, explains the subsequent policy change and briefly describes the country's experience and results. We first present each country case, followed by a summary of their place in terms of technical and allocative efficiency, as defined in section 2. It should be noted that the inefficiency issues covered by these 10 cases are by no means exhaustive.

3.1 Burundi

Forms of inefficiency

Maternal mortality and child malnutrition rates in Burundi are among the highest in Africa. In 2005, the maternal mortality rate was 910 per 100 000 live births and the mortality rates for infant and children under 5 years were 75 and 119 per 1000, respectively (3). Approximately 75% of all mortality was due to communicable, maternal, neonatal and nutritional diseases, and nearly 60% of all children were chronically malnourished. Yet, use of maternal and child health services was limited. In response, the Government decreed in 2006 a policy of free care for children under 5 and for pregnant women; this led to a dramatic increase in the use of services (see Annex 1 for services covered by the free care policy). The increase put pressure on the already thinly stretched staff and resulted in frequent stock-outs of medicines, leading to a deterioration of performance. The central administration could not cope with the sudden influx of invoices, causing significant delays in payment to facilities, exacerbating already low morale and causing high staff turnover rates. Deliveries at health facilities plateaued in 2008 at 56%, antenatal care visits averaged 33%, and only approximately 10% of women used modern family planning services (3, 4) (Figure 2).

Policy change

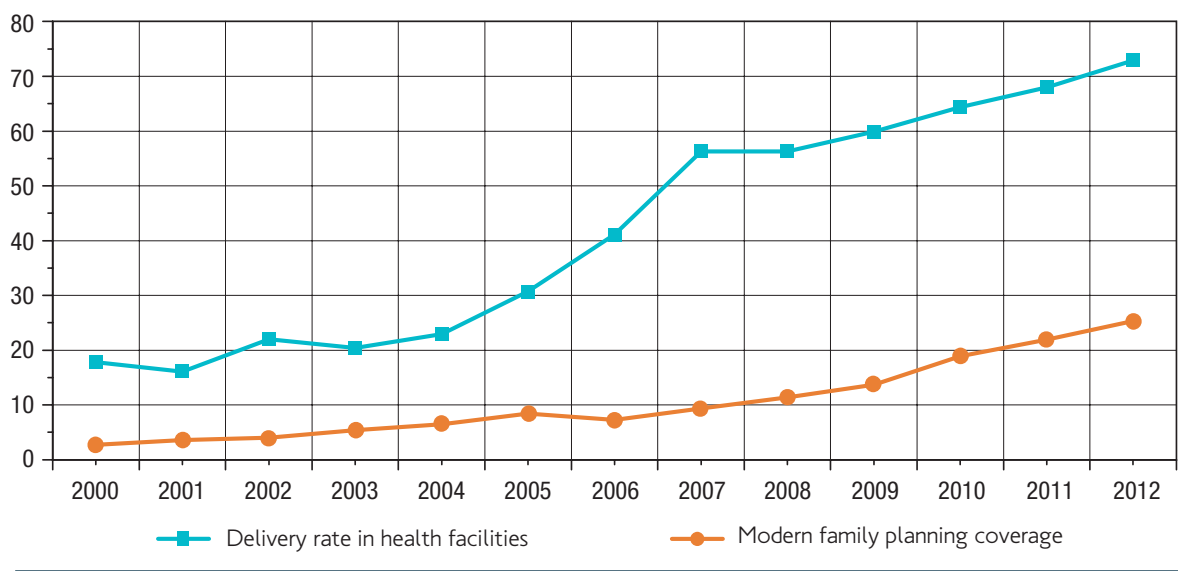
To meet the increased demand, performance-based financing was introduced in 2010 after a period of pilot testing in all contracted health facilities (public, private and faith-based), to incentivize providers to increase the supply of services and improve their quality and to encourage the use of maternal and child health services. Facilities are eligible to participate if they cover a population of at least 7500, deliver 70% of the services in the essential package (see Annex 1) and agree to deliver the free care policy for maternal and child health services. Contracted facilities then receive subsidies for items and services to be provided free of charge to supplement their input-based budgets. In addition, they receive a quality bonus of up to 25% allocated on a number of output indicators, such as antenatal and postnatal care, family planning visits, fully vaccinated children and deliveries. Health care facilities report each month the quantity of incentivized services delivered. Local regulatory authorities make regular unannounced visits to facilities to assess drug availability, prescription behaviour, facility sanitation and other standardized items. A provincial verification committee exercises control (4, 5).

Results and experience

The few evaluations performed in the early pilot years showed that integrating performance-based financing with the free care policy significantly increased use of maternal and child health services and the quality scores of health care facilities. The percentage of deliveries at health facilities increased to 72.9% in 2012, and modern family planning coverage rose to 25.3% (4) (Figure 2). External auditors found that technical quality at health facilities and perceived quality improved from 59% to 79% and from 33% to 83%,

respectively, between 2010 and 2012, although there was no improvement in either technical or perceived quality at district and national hospitals. The authors attributed the improvement to a change in quality assessment practices at hospitals between 2010 and 2012. The reimbursement time dropped from an average of 84 to 45 days in 2012. Nevertheless, 45% of health centres still experienced stock-outs of tracer essential medicines (4).

Figure 2. Increase in use of maternal and family planning services, Burundi, 2000-2012



Source: Burundi National Reproductive Health Programme.

3.2 Chile

Forms of inefficiency

Public and private health insurance developed side by side in Chile, leading to segmentation of health care financing by income and risk, which resulted in inequitable access and use of health services and outcomes by insurance status. The National Health Fund (FONASA) is the single public insurer, covering 76.5% of Chileans, while private health insurers (known as ISAPRE) compete to cover approximately 20%. The public scheme fully subsidizes the homeless and low-income members, while those who can contribute do so by compulsory earnings-related payroll contributions, receiving a small subsidy from the State. For people who opt out of the public system, private health insurers collected premiums based on the type of benefits, the health risk of the individual and the extent of coverage (i.e. cost-sharing or co-payment arrangements). While, in theory, people can choose their insurer, contributions are earnings-related, and “cream-skimming” was practised in the private sector; therefore, segmentation occurred by income and health risk. This resulted in a two-tier system in which members of private health insurers tended to be low-risk, high-income groups using exclusively private sector providers, and National Health Fund beneficiaries who were at higher risk and lower income, served mainly by an overburdened public sector. Because of longer waiting periods in the public sector, National Health Fund members disproportionately used less health care, resulting in inequity in access and health outcomes (6).

Policy change

In 2005, a reform known as Universal Access with Explicit Guarantees (AUGE) was designed to provide citizens, irrespective of whether they were beneficiaries of the National Health Fund or private health insurers, an enforceable legal framework to access the same benefits package of services, high-quality, timely care for the most prevalent health care problems in Chile and protection from health-related financial hardship. In order to maximize health gains, 56 priority health services representing 65% of the Chilean disease burden were offered (Annex 2), with capped, considerably reduced co-payments and limits on maximum waiting

times. Priorities were set on the basis of epidemiological studies of the disease burden, economic evaluations of the available interventions and social studies on the needs and preferences of the population. The criteria considered are listed in Table 1. Legislation required both public and private health care providers to offer the mandated benefits package, abide by the caps on co-payments and deliver services within a given time. Accreditation and certification of providers was designed to raise quality standards by requiring providers to follow a set of clinical guidelines for each medical condition prioritized in the AUGE reform (6).

Table 1. Prioritization of health problems and associated interventions, Chile

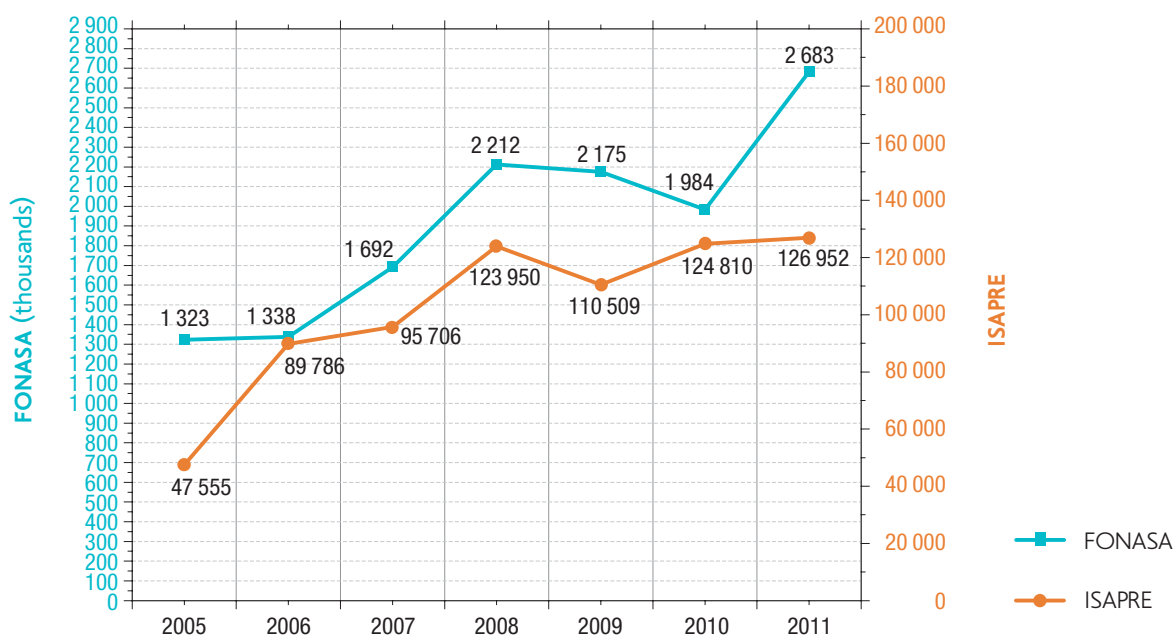
- Extent of the disease (e.g. incidence and prevalence)
- Impact of the disease
- Cost of selected interventions
- Analysis of potential demand for the intervention
- Supply available in the public and private systems
- Financial burden on households

Source: Reference 6.

Results and experience

For people in the lowest income quintile, the reform meant that 20% more services were now covered under AUGE (6), and, while use of AUGE services more than doubled between 2005 and 2011 (Figure 3) across all socioeconomic groups, lower-income members of the National Health Fund used the system more (75%) than high-income groups (24.2%) (7). Targets for waiting time were generally met, although the waiting list for AUGE treatments is longer than for non-AUGE services. Provider accreditation and licensing are still incomplete, and health professionals have not welcomed the reform, as anticipated, as it adds a considerable administrative burden to their daily routine. Only 40% of National Health Fund members were aware of AUGE benefits in contrast to 98% of beneficiaries of private health insurance. Still, nearly 70% of Chileans considered that the country's health care had improved since introduction of the AUGE reform, access being the most valued aspect; 60% of beneficiaries said that the change had resulted in higher-quality services (7).

Figure 3. Increase in new cases under Universal Access with Explicit Guarantees, Chile, 2005-2011



Source: Reference 6.

FONASA, National Health Fund; ISAPRE, private health insurers.

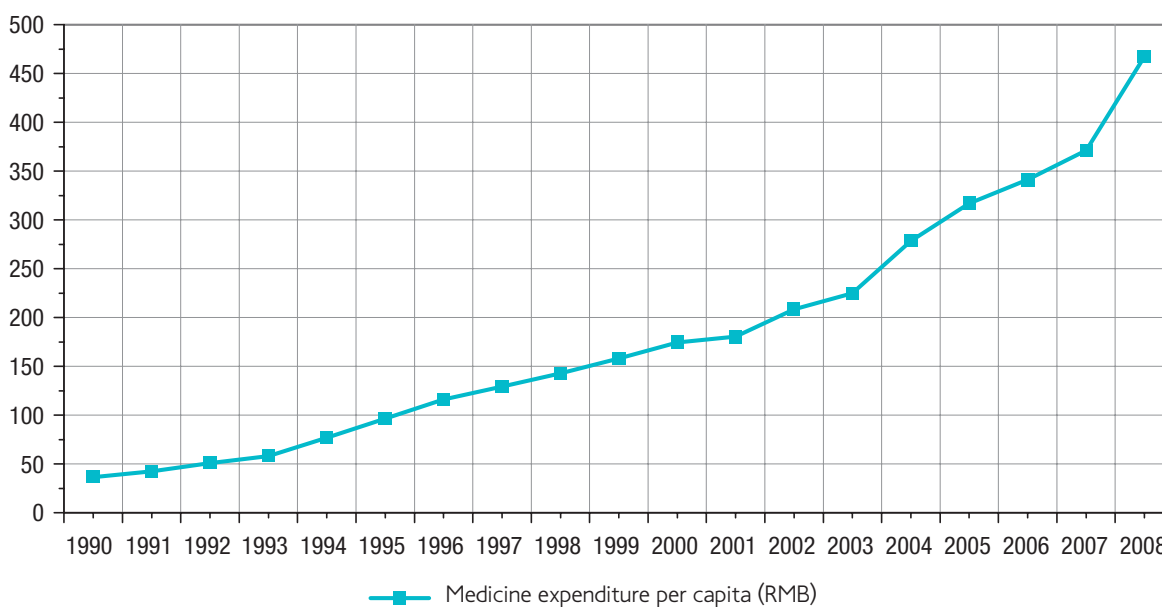
3.3 China

Forms of inefficiency

Inappropriate use of drugs and intravenous injections in China has been widely documented. Between 23% and 61% of all medical encounters result in injections, which is much higher than the WHO-recommended 13–24%; and nearly half of all prescriptions for antibiotics are deemed medically unnecessary, as they are often prescribed as treatment for the common cold, diarrhoea and cough. Fee-for-service payment and distorted fee schedules that allow higher profit margins on drugs and sophisticated diagnostic tests present strong financial incentives for providers to overprescribe drugs, infusions and tests in order to maximize their revenue, especially when labour-intensive services such as office visits are undervalued.

Provider incentives for higher-profit, branded products have also indirectly reduced the availability of essential drugs. A study in Shandong and Gansu provinces revealed that retail pharmacies stocked less than 20% of products on the 2004 national essential drugs list and hospital pharmacies between 20% and 74%. The most frequent reason given by facilities for not purchasing essential medicines was that they were not the preferred treatment choices of providers. Prescribing preferences in turn influence manufacturers' production decisions, which are driven by economic considerations. This led drug expenditure to grow at an annual rate of 15% between 1990 and 2008, from CNY 36.59 to CNY 477.04 per capita, so that it accounted for nearly half of all medical expenditure in 2008 (Figure 4). Liberal use of more expensive, branded products also increases the out-of-pocket burden on households (8). Thus, inappropriate use of drugs not only results in suboptimal quality of medical service delivery but also limits affordable access to essential medicines (9).

Figure 4. Rapid growth in medicine expenditure, China, 1990-2008



Source: Reference 8.

Policy change

In 2009, China established an essential medicines programme for public primary health care facilities, with the goals of reducing inappropriate use of drugs, especially over-prescription of antibiotics, and ensuring access to safe, effective, affordable medicines for all. The programme included a national essential drugs list, although provincial authorities could add drugs to the national list (9). Public primary care institutions are authorized to stock and prescribe only medicines on this list. Provincial authorities conduct centralized bidding to purchase medicines in bulk and distribute them to primary care institutions, which are required to sell essential medicines at the agreed prices. The Government also introduced a zero-profit drug policy, removing the mark-up of medicines in order to reduce the incentive for providers to prescribe unnecessary drugs and to reduce the price for patients.

Results and experience

By the end of 2010, nearly 80% of all primary health care institutions had implemented the national essential medicine policy. Bulk purchasing has resulted in a 25% reduction in the average price of essential medicines relative to the maximum retail price allowed by the Government pricing authority, and the median price of 29 generic drugs has fallen by 5.3% in the public sector and 4.7% in private pharmacies; however, the availability of surveyed medicines was still low and had actually decreased since 2010. There is still little evidence for rational use of medicines and medical expenditure. In one survey of township health centres in three provinces (Ningxia, Chongqing and Tianjin), the compensation provided to facilities was inadequate to make up income lost due to the zero drug mark-up policy, causing a drop in provider salaries and in morale and leading some doctors to raise their fees for services, including the administration of injectable antibiotics (9).

3.4 Democratic Republic of the Congo*Forms of inefficiency*

Decades of political instability and social unrest in the Democratic Republic of the Congo led to the near collapse of the health system. Propped up almost entirely by out-of-pocket payments and international aid, there were 195 projects in the health sector between 2006 and 2012. Lack of coordination among international partners and weak national leadership resulted in misaligned priorities and duplication and waste of resources. Most aid was earmarked for specific programmes rather than for the delivery of basic health services. Each donor had its own coordination mechanisms, management units, administrative procedures, supervision requirements and training. District management teams responsible for the development and operation of all district health services, the lowest level of service delivery, consisted of up to 18 members, each representing a different programme. This fragmentation carried over to operational planning, where it was not uncommon for a health district to have 12 different operational plans per year. This in turn led to inefficient workforce deployment, with overstaffing at many urban health centres and phantom or absentee staff drawing salaries without showing up for work. Equipment and supplies were often delivered to facilities in which there were no qualified staff to operate them, or with missing parts, making them inoperable. In 2009, 85% of the country's international partners were using their own procurement agencies, warehouses and distribution systems, resulting in almost 100 parallel supply channels for essential medicines (10).

Policy change

In 2005, a Health System Strengthening Strategy marked the beginning of the Government's re-appropriation of health policy from external agencies and led to a number of important reforms. First, a single coordinating mechanism was put in place, with a health sector steering committee at national level. Secondly, the Ministry of Health initiated health financing reform to improve the efficiency of donor aid. This obliged the Government and domestic and international partners to agree on a common manual of management procedures, joint financial management of donated health sector funds by a fiduciary agency and creation of a management support unit to help the Ministry of Health prepare funding applications on the basis of unified multi-donor operational plans approved by the national steering committee. In addition, reform of the pharmaceutical sector meant that the body within the Ministry of Health responsible for the supply of quality-controlled generic and essential medicines, the National System for Procurement of Essential Medicines, reasserted control of the national procurement and supply chain. A public finance reform required eligible staff to retire and decentralized human resource management to ensure better deployment of the workforce (10).

Results and experience

Reduced fragmentation resulting from the reforms decreased the management costs of internationally funded projects from an average of 28% in 2005 to 9% in 2011. Between 2009 and 2014, better coordination resulted in savings of more than US\$ 56 million. Single multi-donor annual operational plans at each level of service delivery also led to a significant reduction in waste and duplication at the provincial level in terms of drugs, medical equipment and human resources. The public finance reform allowed the Government to make substantial wage savings by reducing the overstaffing of hospitals, bringing them in line with national standards and eliminating payments for phantom employees and staff eligible for retirement, who made up to 30% of the workforce in some urban facilities. The funds thus released were used to pay the remaining staff, increasing their motivation and productivity (Tables 2 and 3). Greater transparency in planning and budgeting enabled some provinces to increase their operational budgets by 30%. Reform of the pharmaceutical sector and pooling of resources for drug transport by the regional distribution centres of the National System for Procurement of Essential Medicines resulted in annual savings of more than US\$ 3.5 million (10).

Table 2. Reorganization of human resources in district hospitals in Kisangani and Bas-Congo, Democratic Republic of the Congo

District hospital	No. of beds	Initial staff	Current staff	Redeployed	Retired
Boma (Bas-Congo)	200	225	114	49	62
Lukula (Bas-Congo)	100	98	55	23	20
Makiso (Kisangani)	168	226	112	26	88
Kabondo (Kisangani)	160	85	88	0	0

Source: Direction d'Etudes et Planification, Ministère de la Santé Publique, 2010.

Table 3. Evolution of monthly salaries of hospital staff by occupational category, Democratic Republic of the Congo

Staff category	Salary (in euros)	
	Before rationalization	After rationalization
Physician	50	230
Administrator or manager	25	110
Nurse A1	20	90
Nurse A2	15	75
Nurse A3	10	65
Administrative assistant	10	70
Driver	n/a	50

A1, French Baccalauréat plus 3; A2, Baccalauréat; A3, pre-Baccalauréat.

Source: Direction d'Etudes et Planification, Ministère de la Santé Publique, 2010.

3.5 El Salvador

Forms of inefficiency

A number of inefficiencies existed in El Salvador's drug market before reform. There was limited competition among distributors, and entry of new participants was discouraged by high capital and registration costs. Drug legislation restricted the importation of a drug or product to a single distributor, and regulatory capture by the pharmaceutical industry led to conflicts of interest among the regulatory agencies meant to promote the best interests of the population. These distortions in the drug market resulted in high out-of-pocket expenditure for drugs, limited access and consumer dissatisfaction. Lack of political will to regulate drug prices and capture by the industry also meant that drugs were often registered without basic documentation on their quality and efficacy. Lack of laboratories, testing and inspection of drugs further compounded quality (11).

Policy change

The 2012 Medicines Law modernized the regulation of drugs, creating an independent national regulatory agency, the National Medicines Directorate, and setting the maximum retail prices at which drugs could be sold. The Directorate updates the list of prices yearly and is responsible for monitoring compliance and issuing penalties when necessary for all activities in the supply chain, from the importation of foreign drugs to distribution to local facilities. It banned the pharmaceutical industry from giving royalties to physicians for promoting their products, banned the hiring of Directorate officials who had direct relations with the pharmaceutical industry, regulated advertising on medicines, and required physicians to prescribe by active ingredient and not by brand. Updated standards of good practice and periodic inspections of laboratories and pharmacies were the first steps towards improved quality assurance of medicines (11).

Results and experience

The effect was significant, with average overall price reductions of 20–25%, although the reductions differed by product, from 3.3% to 30.5%. The National Medicines Directorate estimated that Salvadorans were saved approximately US\$ 60 million a year in medicine expenses. The average increase of units in the inventories of the top five pharmacy chains was 616%, reflecting the number of units sold and the increase in sales volume following the introduction of maximum retail prices. Surveillance and inspection of laboratories and pharmacies has also increased, leading to better-quality medicines. There is still some ambiguity in price regulation, which could be taken advantage of; for instance, the maximum retail prices at which drugs can be sold applies only to prescribed drugs and not to those sold over the counter. Therefore, the classification of a drug has important implications for pharmaceutical companies (11).

3.6 Ethiopia*Forms of inefficiency*

A large increase in the number of primary health care units in the past decade resulted in a doubling of health posts and five times more health centres in Ethiopia. The health workforce required to meet the increase in demand did not, however, keep pace, showing aspects of both technical and allocative inefficiency. On the one hand, there was clearly an inefficient mix of inputs between capital and labour that limited productivity. Distances to staffed facilities were a major barrier to use of services. In 2005, there were 0.3 physicians and 2 nurses per 10 000 population, which are among the lowest densities in Africa. On the other hand, the distribution of the limited health workforce among and within districts was uneven, and they were poorly trained, resulting in gaps in the delivery of essential services in rural areas. Only 25% of pregnant women were receiving antenatal care and only 33% of children were fully vaccinated (12).

Policy change

In order to augment human resources for health, a new cadre of health extension worker was deployed to health posts to meet family and community demands. The goal was to have two salaried health extension workers for each population of 5000. Training would focus on a package of 16 well-defined health interventions and be considerably shorter than that of conventional health workers (Table 4). In addition, production of mid-level health professionals would be scaled up and tasks shifted from generalist and specialist physicians to health officers and a new cadre of emergency surgical officers. Innovative pre-service training programmes were introduced for general practitioners in 13 additional colleges and universities, many outside regional capitals. Regional quotas were set for applicants from disadvantaged regions (12).

Table 4. Services included in the health extension worker programme, Ethiopia

Hygiene and Environmental Sanitation

- Excreta disposal
- Solid and liquid waste management
- Water supply safety
- Food hygiene and safety
- Healthy home environment
- Arthropod and rodent control
- Personal hygiene

Disease Prevention and Control

- Prevention and control of HIV and other STIs
- Tuberculosis prevention and control
- Malaria prevention and control
- First aid

Family Health Services

- Maternal and child health
- Family planning
- Immunization
- Adolescent and reproductive health
- Nutrition

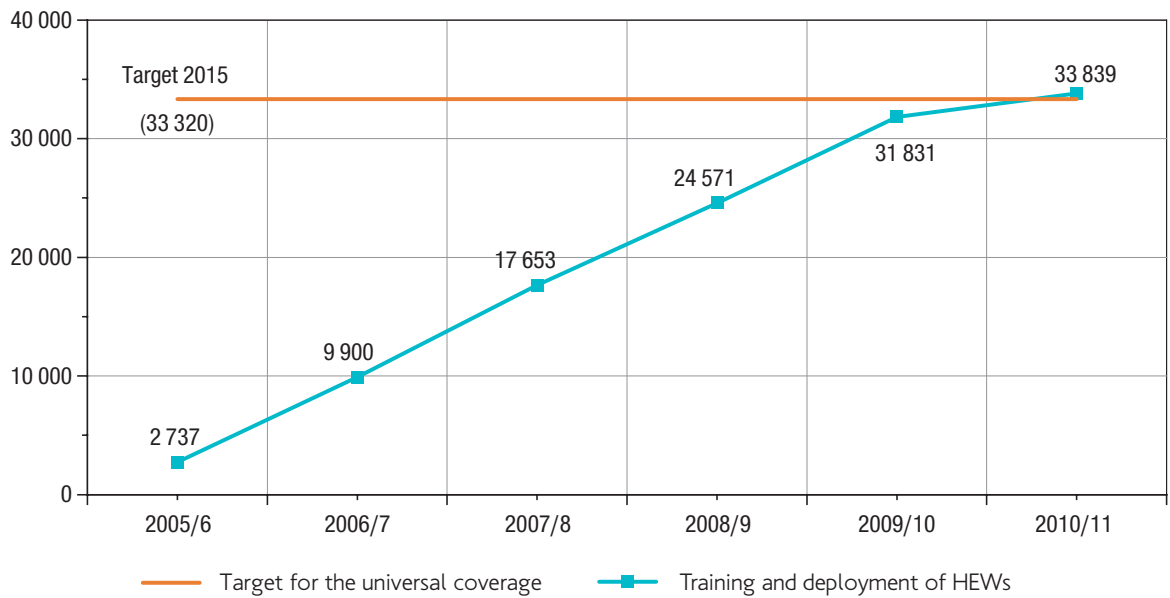
Health Education

Source: Reference 12.

Results and experience

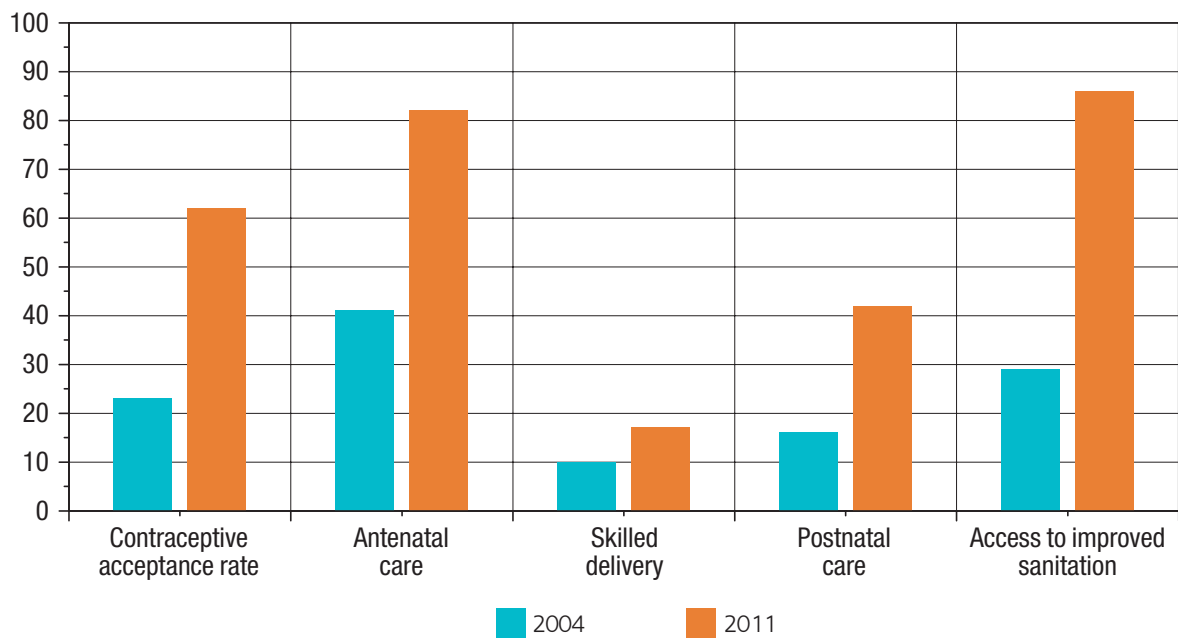
By the end of 2012, more than 35 000 health extension workers had been trained and deployed, surpassing the community-level targets (Figure 5). The ratio of health officers to population improved from 1 per 63 785 in 2007 to 1 per 17 128 in 2012. In 2013, 136 emergency surgical officers graduated and were deployed, improving emergency obstetric services in rural communities. An additional 3200 nurses graduated from midwifery training and were deployed nationwide. While the number of general practitioners is still considered inadequate, the number of graduates per year is projected to surpass 3000 after 2018, from a level of 336 in 2010. As a result, use of high-impact interventions has increased. The rate of acceptance of contraceptives increased from 23% to 62%, use of antenatal care doubled, from 41% to 82%, attended skilled deliveries rose from 10% to 17%, attendance at postnatal care increased from 16% to 42%, and access to improved sanitation reached 86% between 2004 and 2011 (Figure 6). In 2013, 95% of health posts were treating malnutrition, and 79% were offering integrated community case management of pneumonia, malaria, diarrhoeal diseases and severe acute malnutrition. While cost-effectiveness has not been studied, the salary of a health extension worker is less than that of a professional health worker, and health extension workers are chosen from within communities to ensure sustainability; this is the only cadre for which the ratio of health worker to population is similar in all regions. The estimated savings from lower wage bills for health extension workers, health officers and emergency surgical officers are US\$ 20 million per year (12).

Figure 5. Number of health extension workers deployed, Ethiopia



Source: Reference 12.

Figure 6. Increased use of high-impact interventions, Ethiopia, 2004-2011



Source: Reference 12.

3.7 Mexico

Forms of inefficiency

Two parallel subsystems operate in Mexico. In the first, formal sector workers and their families receive comprehensive health care through social security funded by payroll contributions from the Federal Government, employers, employees and a State subsidy. Various social security schemes, of which the Mexican Institute of Social Security and the Institute of Social Security and Services for Government Workers have the largest membership, offer different health insurance benefits provided only through their own network of health care providers. In the second subsystem, uninsured people (farmers, self-employed and unemployed people), representing nearly half the population or 60 million people, relied on consistently underfunded, limited health services provided by the State. Health sector resources were allocated from budgets that were based on the availability of infrastructure and personnel, perpetuating inefficient and inequitable distribution. Wide variations in public expenditures on health were seen, not only between people covered under social security schemes and those who were uninsured but also among states. In 2000, public health expenditure was twice as high for people covered by social security schemes than for the uninsured, and per capita Federal expenditure was six times higher in the state receiving the most funding than in the state receiving the least support. Inequities in financing and access to health care services resulted in extensive out-of-pocket health spending, accounting for nearly half of total health expenditure (13–15).

Policy change

In 2003, the Government legislated creation of the Social Protection System in Health, which included popular health insurance, which guarantees defined benefits packages to all people not covered by any social security scheme; the Fund for Personal Health Services, which included essential primary and secondary level interventions considered the most cost-effective for treating the conditions prevailing in the population; and the Fund for Protection against Catastrophic Health Expenditure, which offered additional coverage of a limited number of high-cost specialized treatments. Federal contributions to popular health insurance were aligned with that of the Mexican Institute of Social Security in order to redress some of the past funding inequities between those with and without social security. Instead of relying on past budgets, actuarially calculated premiums, transfers from the State and family contributions by ability to pay would now determine public health sector funding (13, 14).

Results and experience

By 2013, an additional 53 million people were covered by popular health insurance and had access to 284 interventions, 522 medicines and services for 57 catastrophic conditions. This led to a decrease in out-of-pocket expenditure as a share of income, especially among families newly covered by popular health insurance. Between 2004 and 2010, impoverishing health expenditure fell from 0.2% to 0.1% for households with social security and from 2.1% to 1.6% for those without. While public expenditure on health as a share of GDP increased by 0.7% from 2.4% between 2000 and 2009 to accommodate for the expansion of health insurance, the ratio of public spending on people covered by social security and those covered under the public system decreased from 2.1% to 1.2%. In 2007, the Institute of Social Security and Services for Government Workers, the other major social security provider, was also restructured in anticipation of the creation of a single payer scheme. Large inefficiencies remain, however. Fragmentation among several health insurance schemes that offer different benefits, are financed separately and deliver services through their own network of providers result in high administrative costs, amounting to 10.8% of total health expenditure in 2011 (14, 15).

3.8 Republic of Korea

Forms of inefficiency

Three types of health insurance funds existed in the Republic of Korea: one for employees, one for school teachers and civil servants and one for self-employed people. Membership was mainly based on workplace (for employees) or residential area (for self-employed people). While all three schemes provided the same statutory benefits and reimbursement of providers, the premium contributions were unequal, self-employed people being charged on the basis of income, property and household size, while employees were charged

only on the basis of wage income. The complexity of the contribution rules meant that many beneficiaries did not understand what their premiums were meant to be. With the addition of the difficulty of measuring the income of self-employed people, this led to higher noncompliance rates in this population than among those employed in the formal sector.

The burden of contributions also differed from region to region, and fiscal deficits were common among schemes for self-employed people. Despite Government subsidies to self-employed funds, the amount was not comparable to that which employers paid on behalf of their employees. The management of funds was fragmented among more than 350 quasi-public not-for-profit insurers, so that the amount of insurance funds was often too small to efficiently pool risk. Of major concern were the high administrative costs and inequity in premium contributions, fiscal sustainability and utilization of insurance funds (16).

Policy change

In 2000, health insurance funds were merged into a single risk pool and managed by two agencies: the National Health Insurance Scheme and the Health Insurance Review and Assessment. The National Health Insurance Scheme collects premiums and processes claims to providers, while the Health Insurance Review and Assessment is responsible for purchasing, including setting the benefit package and provider payment method, and reviewing claims. A health insurance policy committee approves major decisions on health insurance at national level, such as contribution rate, benefits packages and pricing. It is composed of 25 members, with the Vice-Minister of Health and Welfare as the chair and a tripartite committee of payers, providers and experts and public agencies. Attempts have been made to equalize the contribution rates of employed and self-employed beneficiaries (16).

Results and experience

A major efficiency gain was obtained by merging the three insurance schemes into a single risk pool, resulting in significant savings in administrative costs, which dropped from 7.87% of all National Health Insurance Scheme expenditure to 2.38% between 1996 and 2008 (Table 5). There is limited evidence for equity of use, although the savings in administrative costs have allowed expansion of health insurance benefits to include more services for all (e.g. screening programmes for five cancers, reduced co-insurance rates for conditions that incur significant out-of-pocket expenditure, and ceilings for cumulative out-of-pocket payments for the services covered every 6 months) (16).

In addition, the collection and contribution rate as a share of total National Health Insurance Scheme revenue for self-employed people has increased steadily, from 89.6% in 2000 to 96.3% in 2009 and from 9.8% in 1988 to 20.5% in 2008 (17). While premium contributions have been equalized between self-employed and employed groups, the self-employed contribution formula remains more regressive.

Table 5.
Decreases in health insurance administrative costs (KRW), Republic of Korea, 1996-2008

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2008
Total expenditure	6 379	7 555	8 701	9 610	10 744	14 108	14 798	15 972	17 330	19 980	22 818	28 273
Administrative costs	502	618	639	571	696	629	598	634	693	759	779	672
Proportion of administrative costs (%)	7.87	8.18	7.34	5.94	6.48	4.46	4.04	3.97	4.00	3.80	3.41	2.38

Source: Health Insurance Statistics (2012).

3.9 South Africa

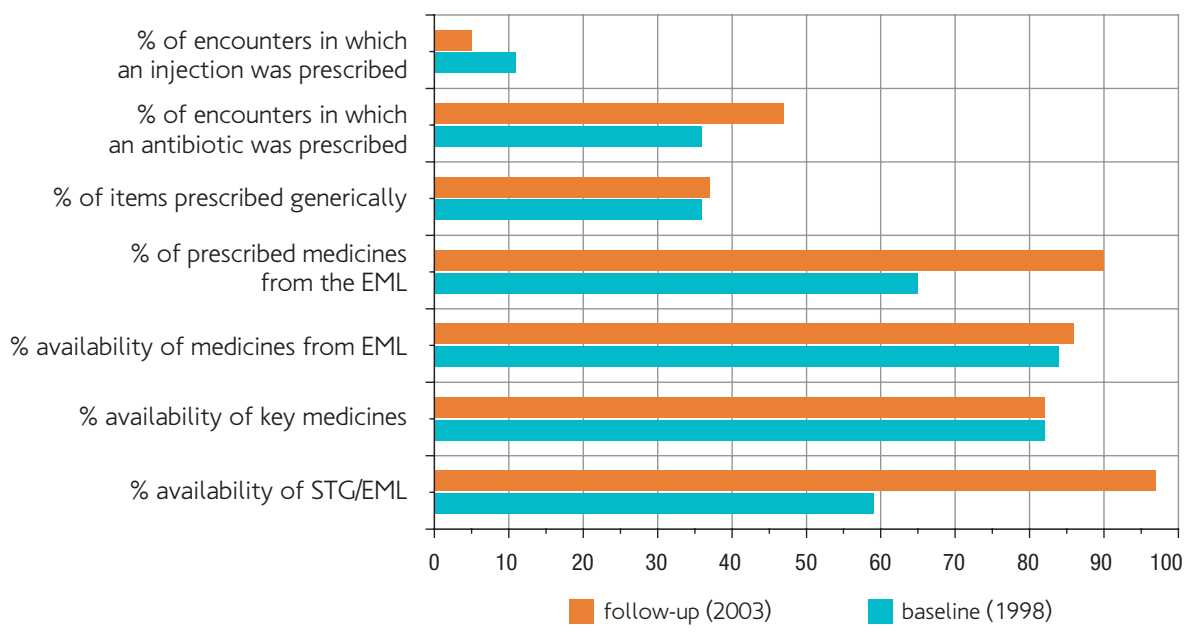
Forms of inefficiency

In South Africa, years of apartheid resulted in a highly fragmented health care system, as reflected in the financing and delivery of medicines. First, medicines were financed and delivered in ways that reflected racial privilege. For white patients, drugs were provided from private pharmacies and paid for by provincial departments of health. For non-whites, medicines were procured by the National Department of Health and the Bantustan¹ departments of health and distributed to hospitals and other facilities; however, funding for health care services and drugs were systematically underfunded in the Bantustans. In addition, weak, fragmented health authorities procured and distributed drugs inefficiently. Medicines for the public sector were selected by each provincial department of health, which operated its own central medical store or depot, predominantly for curative care, and by the National Department of Health for preventive and promotional services. Drug procurement was not evidence-based, medicines were overpriced, and stores were filled with non-essential medicines. In 1994, the essential medicines list included 2600 items, including a significant number of duplicates of the same pharmacological class (18).

Policy change

In 1995, an essential drugs programme was established to rationalize the selection, procurement, distribution and use of drugs. After the democratic transition, each of the nine new provinces was required to set up its own pharmaceutical depot in order to bring more effective distribution closer to health facilities. Provincial pharmacy and therapeutics committees would make selections and include drugs on procurement lists. Selection of an essential drug would be based on the needs of the population, evidence of effectiveness and product quality, use of generics, a commitment to support reliable local suppliers and, in general, a preference for single-agent products (18). The results of the programme are shown in Figure 7.

Figure 7. Results of an impact study by the South African Essential Drugs Programme



Source: Reference 18.

EML, essential medicines list; STG, standard treatment guidelines.

¹ Bantustans were tribal homelands set aside for Black African ethnic groups as part of the policy of apartheid. The Bantustans had quasi-independent powers, with separate health departments.

Results and experience

By 2008, the number of medicines on the essential drugs list had dropped to 337 (in 422 dosage forms); however, there is no published evidence that introduction of standard treatment guidelines and essential medicines lists improved the efficiency of procurement of medicines in the public sector. The variable financial management in provinces meant that some provinces were unable to pay suppliers on time, resulting in interruption of services and repeated stock-outs. While the use of injections and prescription of essential drugs became more rational, there was no evidence of more generic prescriptions between 1998 and 2003 (18).

3.10 Uruguay

Forms of inefficiency

Health insurance in Uruguay was fragmented: the public State Health Services Administration provided health services free of charge to predominantly low-income groups, and a collective of health care institutions, the main private health provider, delivered care to workers in the formal sector through a network of private hospitals and clinics. The collective, composed of small insurers and lenders, had complex, diverse contribution schemes, which varied by geographical location, their ability to attract clients and the age and risk of the affiliated population (19). These small risk pools meant that most of the insurers had severe financial difficulties. Between 2000 and 2005, 19% of collective members disappeared (42% in Montevideo). Growing concern about the efficiency and financial sustainability of the health sector were also due to the allocation of resources. Thus, the system had not responded to the country's changing epidemiological profile. In 2002, chronic diseases accounted for 75% of all lost disability-adjusted life years, and cardiovascular diseases and tumours accounted for 58% of all deaths, yet few health sector resources were dedicated to primary care, prevention or health promotion (20).

Policy change

In 2007, the National Integrated Health System brought together the private and public subsystems. Its aim was to provide comprehensive, equitable universal health coverage under a single benefits plan known as the Integrated Health Care Plan, which shifted the focus of service delivery back towards primary health care, prevention of noncommunicable diseases and health promotion activities. Twelve national programmes were meant to cover conditions covering an individual's entire life span, including a series of preventive and diagnostic services (Table 6). The creation of the National Health Fund unified preexisting insurance schemes into a single national health insurance scheme. It is funded by mandatory contributions from employers, pensioners and workers on the basis of income and household size and the central Government. It pays providers by capitation adjusted for the age and gender of the beneficiaries and the fulfilment of predefined health care goals. Integrated private providers, which include both public service providers such as the State Health Services Administration and private providers such as the collective of health care institutions, then deliver services to national health insurance beneficiaries (20).

Table 6. Programmes included in the National Integrated Health System (Integrated Health Care Plan benefits), Uruguay

- National Child Health Programme
- National Women's and Gender Health Programme
- National Adolescent Health Programme
- National Senior Health Programme
- National Oral Health Programme
- National Mental Health Programme
- National Programme for People with Disabilities
- Sexually Transmitted Diseases–AIDS Priority Programme
- National Nutrition Programme
- National Programme for Care of Problem Drug Users
- National Tobacco Control Programme

There is a plan to include mental health services in the integrated national health system.

Source: Reference 19.

Results and experience

The reform led to a number of positive changes:

- expansion of health insurance coverage to immediate family members and retired formal workers; the population covered by the national health insurance thus doubled, reaching 1.59 million people in 2010 or 47.5% of the population;
- statutory benefits available to all;
- renewed emphasis on primary care and the prevention of noncommunicable diseases;
- more equitable, transparent national health insurance premiums that take into account household size and income; and
- a decrease in household out-of-pocket expenditures by more than 5 percentage points between 2007 and 2010 (19).

3.11 Summary

The country cases presented here show that many reforms were motivated not only to improve efficiency but also to improve equity, as seen in Burundi, Chile, Ethiopia, Mexico, the Republic of Korea and Uruguay. Further, inefficiencies in many countries manifested as problems of both allocative and technical efficiency. Nonetheless, this collection of country cases illustrates the increased attention to efficiency in the global quest towards universal health coverage.

In both Burundi and Ethiopia, technical inefficiency resulted from an inefficient mix of inputs. In Burundi, increased funding for free maternal and child care did not increase use of those services as expected, until performance-based financing was introduced to incentivize providers to increase the quantity and quality of services delivered. In Ethiopia, investment in health centres to improve access to primary care had a limited effect until they were adequately staffed with health extension workers and mid-level professionals. This was made possible by task shifting and shorter training programmes that helped address the shortage of human resources at minimum cost.

Chile, Mexico and Uruguay attempted to reduce inequity and fragmentation in their health insurance systems. Chile introduced services to standardize the benefit package of services for all, irrespective of whether they were enrolled in public or private schemes. Similarly in Uruguay, an integrated national health system providing comprehensive care to all residents eliminated fragmentation in the insurance system and reduced inequities in financing of and access to services. While Mexico did not create a single national health insurance fund, it attempted to redress the inequity between people with and without social security by guaranteeing a package of essential benefits to those not covered by social security and by harmonizing Federal contributions to the public and the predominant social security scheme. All three countries attempted to achieve allocative efficiency by explicitly prioritizing their financing and benefits packages for the health conditions that cause the greatest burden of disease and to include the most cost-effective interventions. For example, in Uruguay, health care was re-focused on primary care and health promotion and prevention to manage the increasing prevalence of chronic diseases. In Chile and Uruguay, further attempts were made to improve technical efficiency by mandating all providers (both public and private) to deliver priority health care services in the benefits package for the same price (Chile) and by using pay-for-performance (Uruguay). The Democratic Republic of the Congo also attempted to achieve better allocation of resources, by creating a new set of transition structures to better coordinate donor involvement and development assistance for health with Government priorities.

China, El Salvador and South Africa had major technical inefficiencies in over-prescription of medicines, under-utilization of generic and essential drugs, fragmentation of supply and distribution chains and the pricing and regulation of pharmaceuticals (El Salvador). In other words, the same health gain could be achieved at lower cost by addressing these issues. The three countries introduced a combination of essential drug lists, maximum drug prices and good practice policies to limit inappropriate and ineffective use of medicines, encourage the use of generics over higher-priced brand-name drugs and curb the circulation of substandard products in the system. The case study of the Republic of Korea illustrates how merging multiple insurance funds can significantly reduce high administrative costs and achieve greater technical efficiency.

Table 7 summarizes the problems addressed in each case study and the types of inefficiency the countries attempted to overcome.

Table 7. Summary of case studies			
	Problem	Intervention	Lessons
Burundi	Little use of maternal and child health services. Poor quality (e.g. frequent stock-outs).	Performance-based financing explicitly linked to benefits package to improve quantity and quality of services.	Provision of free maternal, newborn and child services for targeted increase in use of priority health services. Complementary supply-side intervention required to motivate providers to deliver priority services Importance of managerial capacity and information systems in contracting providers and monitoring the performance-based financing scheme. Alignment of donor support with country priorities.
Chile	Fragmentation of health financing by income and health risk. Inequity in coverage, access and health outcomes.	AUGE* benefit package. Accreditation and certification of providers.	Prioritization of cost-effective health interventions. Complementary supply intervention required to motivate providers to deliver AUGE services. Importance of managerial capacity to monitor use of clinical guidelines and accredit providers.
China	High out-of-pocket drug expenditure. Poor quality and inappropriate use of drugs.	Essential drugs list. Zero-profit drug policy. Subsidy to providers to compensate loss of drug revenue.	Prioritization of essential medicines for basic primary care. Difficult to implement policy objectives in a decentralized context in the absence of accountability mechanisms. Importance of managerial capacity to select and procure drugs.
Democratic Republic of the Congo	Fragmentation of health financing and service delivery. High management costs. Duplication and waste of resources. Misallocation of resources.	Single national steering committee. Common manual of procedures agreed upon by Government and all partners. Single operational district plans. Establishment of joint financial management.	Strong leadership required to align and coordinate international aid with sector priorities. Coordinated planning, budgeting and resource allocation to reduce waste and duplication of resources and decrease management costs.
El Salvador	High out-of-pocket drug expenditure. Poor-quality products.	Price controls. Creation of an independent regulatory agency. Standards of good practice.	Investment in independent regulatory agencies required for licensing, accreditation, monitoring and evaluation functions. Importance of managerial capacity and information systems to regulate the pharmaceutical industry.

	Problem	Intervention	Lessons
Ethiopia	Low-density health workforce. Health clinics not adequately staffed. Uneven distribution of health workers throughout the country. Little use of services.	Creation of a new cadre of community health worker. Task-shifting from physicians to mid-level professionals. Regional quotas for physicians from disadvantaged regions.	Prioritization of primary care at community level. Use of non-traditional health workers and task-shifting to achieve a better input mix .
Mexico	Inequitable financing and access to health services. Uneven distribution of resources.	Creation of a package of guaranteed health benefits for all those not covered by social security.	Prioritization of primary and secondary level cost-effective interventions. High administrative costs remain due to managing multiple and fragmented insurance schemes.
Republic of Korea	Inequitable financing and health service use. High administrative costs.	Multiple health insurance schemes merged into a single payer. Revision of premium contribution formula.	Merger to reduce fragmentation of risk pooling and administrative costs.
South Africa	Inequitable drug financing and access to medicines.	Essential drugs list. Standards and guidelines for drug use.	Prioritization of essential medicines for basic primary care. Difficult to implement policy objectives in a decentralized context in the absence of accountability mechanisms. Importance of managerial capacity to select and procure drugs.
Uruguay	Fragmentation and inequity in health financing. Misallocation of resources.	Merging of multiple health insurance schemes into a single national health fund. Integrated Health Care. Plan benefit package.	Merger to reduce administrative costs of fragmentation. Prioritization of primary care and health care provision aligned with epidemiological profile.

*AUGE, Universal Access with Explicit Guarantees.

4

LESSONS LEARNT

Latitude in defining inefficiencies in the various case studies makes it difficult to synthesize the lessons learnt. The types of inefficiency addressed in the 10 country case studies are different, with no standard framework to conceptualize or quantify efficiency. Little information has been reported on the costs of reform: studies usually provide only output or outcome measures. Despite the widely varying forms of inefficiency, the different country contexts and the range of policy instruments used to achieve greater efficiency in the health sector, a number of lessons and recommendations emerge. In most cases, improving efficiency in the health system will be complex and continuous, requiring careful planning and a coordinated system-wide approach.

4.1 Prioritization of primary health care

More than 30 years after the Alma Ata Declaration on the importance of primary health care, essential health services are receiving renewed attention. In Burundi, under the 2006 free care policy, health care facilities were funded to deliver maternal and child health services for free to children under 5 years and to pregnant women. Later policies included the provision of free services for the prevention and treatment of infectious diseases. In Ethiopia, childhood vaccination, family planning services, prevention and treatment of malaria and treatment of diarrhoea and pneumonia in children under 5 years formed the basis of the health extension worker training programme to meet community demand. The Republic of Korea offers maternal and child health services, family planning, vaccination, prevention of both communicable and chronic diseases and cancer management programmes. In Uruguay, 12 national programmes are included in the National Integrated Health System, which is focused on primary care and disease prevention. The programmes were chosen so as to follow individuals throughout their life span, with a reference physician who detects risk factors early on and provides continuous care.

There is also better efficiency in the delivery of primary health care. China and South Africa established lists of essential drugs that must be stocked by all primary care facilities. National drug policies are intended, in theory, to promote rational, cost-effective use of drugs and ensure the availability and accessibility of essential drugs for all citizens.

4.2 Alignment of financing and delivery

A second major lesson is complementarity of policies, in particular alignment of financing and delivery strategies. Health insurance is a prime example of a complex intervention that can have multiple, system-wide effects. Stand-alone financing interventions that increase or modify benefits packages separately from complementary supply-side interventions are unlikely to achieve the desired result. Before the reforms in Burundi, Chile and Ethiopia, policy-makers did not anticipate the physical, human and financial resources that would be required to accompany the extension of health care benefits. Burundi experienced a marked deterioration of quality at health care facilities, with frequent stock-outs of medicines, equipment failures and low staff morale. Providers in Chile were unwilling to inform patients about their AUGE entitlements, as each AUGE treatment increased the administrative burden of recording information. The uneven distribution and inappropriate skill mix of health care workers in Ethiopia also led to low staff morale and unmanned health facilities, especially in rural areas.

4.3 Better accountability through outcome- and output-based contracts with providers

The empirical literature has shown consistently that providers often react to financial incentives in ways that are at odds with cost containment. Each provider payment method, as well as the level of payment that is

set, carries powerful incentives that drive both the quantity and quality of services (21, 22). While performance-based financing in Burundi linked payment of institutions to predefined outputs, the zero-drug policy in China delinked provider payment from prescribing behaviour. Financial incentives are also not the only way to motivate providers. Whereas Burundi used financial incentives to increase quality, Ethiopia achieved a similar improvement in service quality by matching training to community needs and providing career development. The reforms in Chile lacked a clear implementation and training strategy to motivate providers to deliver the priority AUGE interventions. Involving clinical physicians in prioritization of health services might have improved their responsiveness and acceptance of the reforms.

4.4 The right input mix

Finding the optimal mix of skills in health workers and type of health facility can stretch limited health care resources and improve technical efficiency. For instance, task shifting among the health workforce in Ethiopia and the creation of a new cadre of non-traditional health extension workers to deliver 16 common interventions in local communities not only redressed the skewed distribution of providers towards urban areas but also resulted in large savings in wage bills.

4.5 Implementation in a decentralized system

The organization of service delivery, including changes in incentives and the autonomy of decision-making, must be aligned with the policy objective. In South Africa, fiscal federalism under the 1996 constitution meant that the national Department of Health had limited power to ensure the selection and procurement of drugs at provincial level. As State revenues are allocated to provinces on the basis of demographic needs and social indicators, provincial treasuries become the main source of funds for provincial departments, and they are under no legal obligation to select and procure essential drugs. Therefore, despite a national drug policy and comprehensive, standard treatment guidelines, some provinces choose drugs in the same pharmacological class, creating unnecessary duplication of products, with no evidence-based reason. Similarly, provinces in China can supplement essential drugs lists, and it is not uncommon to find that drugs that have been left off the national drug list because of lack of effectiveness or negative side-effects are included on provincial supplementary lists. This puts into question the ability of institutional structures to enforce national policies in a decentralized context in the absence of accountability mechanisms.

4.6 Independent regulatory agencies

Countries that are successful in ensuring quality standards tend to have engaged an independent regulatory agency to license and accredit facilities and providers and for monitoring and evaluation. In Burundi, the Ministry of Health remains the main financing agent, provider and regulator, making it difficult to apply financial sanctions. Similarly, in El Salvador before the reforms, the regulation of drugs involved considerable conflicts of interest, some officials being either directly or indirectly involved in the pharmaceutical industry they were meant to regulate. Providers could also receive royalties for promoting pharmaceutical products. Creation of the National Medicines Directorate and its financial independence from the Government not only removed conflicts of interest but also gave the regulator sufficient power and resources to monitor compliance and impose penalties.

4.7 Managerial capacity and information systems

All these reforms require managerial capacity and health information systems that allow monitoring and evaluation of health system performance to improve transparency and accountability. The cost of improvement can vary significantly among high-performing and low-performing ministries, organizations, facilities and providers. Therefore, it is important to understand the baseline capability of each. Purchasers should be able to identify qualified, eligible providers who clearly demonstrate their capacity to supply services and to meet the service volume requirements and quality standards. Insurers themselves must be able to negotiate and manage contracts with providers. Independent regulators must have access to timely, accurate data in order to assess provider compliance with contractual obligations and quality standards.

4.8 Fragmentation: a common source of inefficiency

Fragmentation of organization and service delivery is a common source of inefficiency. In the Republic of Korea, management of multiple risk pools incurred high administrative costs and inequities in financing and health care use. Mexico still struggles with high administrative costs and residual inequity in access to

services, as multiple insurance schemes covered formal sector workers and the Social Protection System in Health each had their own risk pools, funding sources, benefit packages, provider networks and administrative structures. In Chile and Uruguay, parallel public and private insurance schemes segmented populations by risk and income, leading to inequity in coverage, access, quality and outcomes. In South Africa, the legacy of apartheid carried over into separate financing and delivery of medicines. In the Democratic Republic of the Congo, lack of coordination among the many international partners resulted in the duplication of services, waste of resources and misallocation of financial and human resources.

Although not described explicitly in the case studies, a growing body of evidence links integrated delivery systems with better quality and efficiency (23–26). It is not clear whether “gatekeeping” and coordination policies are part of the reforms made in the 10 countries. If patients are allowed to by-pass primary care facilities to seek care at tertiary hospitals or to demand brand-name drugs rather than generics, potential savings from the right mix of interventions and medicines are compromised. For example, in Kyrgyzstan, a reform in outpatient drug packages for hypertension control meant that 95% of prescriptions were written for generics, but only 45% of the medicines purchased with the prescriptions were for generics, as patients demanded brand names at the point of sale (probably due to the influence of pharmacists) (27). Attaining universal health coverage will require not only an appropriate mix of benefits and medicines to protect individuals from out-of-pocket expenditures but also features to promote cost-effective use of care.

4.9 Alignment of donor support with country priorities

Collaboration with development partners in Burundi helped the Government to pool resources for harmonized policy objectives, facilitate the design and implementation of performance-based financing and develop local capacity for negotiating contracts and monitoring and evaluating provider performance. This may be an interim solution for countries when sustained financial investment is needed and managerial, monitoring and evaluation capacity is weak. In the Democratic Republic of the Congo, poor governance and lack of leadership in the health sector meant that donor aid was often used to support disease-specific programmes rather than basic health services under a nationally coordinated health sector plan. It was not until a group of decision-makers from the Ministry of Health, civil society and aid agencies reasserted themselves in the health sector that donor support became aligned with the country’s health priorities.

5

FUTURE DIRECTIONS

The lessons learnt indicate several ways of improving efficiency.

5.1 A broader systems focus

The case studies presented here clearly show that one intervention can affect the wider system; thus, it is important to design interventions by a systemic approach, in which different policy instruments are aligned. Achieving the desired results will depend on anticipating these effects and planning comprehensive or phased reforms. For example, will providers and health care facilities be able to cope with an increased demand after expansion of health care benefits? Will providers be trained to comply with new and changing protocols, and will they be compensated for providing additional services, especially if this increases their administrative burden? Will the purchaser be able to monitor service delivery agreements with providers?

5.2 Measures of health system efficiency

As seen in the country case studies, “efficiency” can be interpreted broadly; therefore, a framework is required to measure, quantify and compare inefficiency. Outcome measures, in terms of health status, financial risk protection and public satisfaction, are often given priority, with little thought for the inputs expended and the costs required to effect such change. Yet, both are required for analysing system efficiency. For example, if the focus of an intervention is to improve allocative efficiency, the input indicators could include the percentage of government health expenditure allocated to primary, secondary and tertiary care or the percentage of the population covered by priority interventions, depending on the problem to be addressed by the system, such as uneven distribution of physical and human resources between urban and rural areas, a focus on hospital and curative care or less use by lower-income groups (28). In contrast, the introduction of performance-based financing makes it easier to assess the technical efficiency of some interventions, as process indicators are often used, such as the percentage of doctors who follow clinical and best practice guidelines, the number of antenatal care consultations given, the rate of health worker absenteeism and the average number of days required to register a drug.

5.3 Research on process and implementation

Most of the interventions described in this report are measured as single activities, with a focus on impact, i.e. whether the intervention achieved its desired outcome. Much less attention is given to the political, organizational and service delivery environments in which they were implemented and the circumstances in which outcomes are maximized. Yet, allocative and technical efficiency are measures precisely of the conditions or processes under which inputs are translated into maximum output. Implementation research can offer valuable information about the factors that enable or constrain efficient use of public resources in the health sector and the processes that must be in place. This is a currently neglected field of research.

5.4 Information systems and managerial capacity

Improving transparency and accountability requires better administrative data on costs and routine service, plus the capacity to analyse and process information. While price and volume controls strongly affect cost control and service delivery, they are “blunt instruments”. As the capacity and experience of health authorities and regulatory agencies increase, aligning resource allocations to population need, value-based pricing, health technology assessments and performance-based financing may be more widely used as policy instruments to increase efficiency.

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ANNEXES

Annex 1. Services subsidized under the performance-based financing system in Burundi

	Health centres	Hospitals
Clinical services	New clinical case (≥ 5 years)	New clinical case (≥ 5 years) (medical doctor)
	New clinical case (< 5 years)	New clinical case (< 5 years) (medical doctor)
	Inpatient day (≥ 5 years)	Inpatient day (≥ 5 years)
	Inpatient day (< 5 years)	Inpatient day (< 5 years)
	Minor surgery	Minor surgery
	Referral to hospital	Major surgery
	New patient on anti-retroviral therapy (ART)	Referral or counter-referral to a health centre
	Patient maintained on ART for 6 months	New patient on ART
	Sexually transmitted infection treated	Patient maintained on ART for 6 months
	New tuberculosis case detected and initiated	Sexually transmitted infection treated
	Patient with tuberculosis cured (treated > 6 months)	New tuberculosis case detected and initiated
Reproductive health	New clinical case (pregnant woman)	New clinical case (pregnant woman) (medical doctor)
	Normal delivery	Normal delivery
	Family planning visit (new and follow-up)	Caesarean delivery
	Intra-uterine device inserted	Complicated delivery
	Prenatal care	Family planning visit (new and follow-up)
	Postnatal care	Intra-uterine device inserted
		Tubal ligation
		Prenatal care
	Postnatal care	
Preventive services	Child fully vaccinated	Male circumcision
	Pregnant woman fully vaccinated	HIV-positive pregnant woman under ART
	HIV-positive pregnant woman under ART	New born care for infant born to an HIV+ mother
	Care for infant born to an HIV-positive mother	Voluntary HIV testing and counselling
	Voluntary HIV testing and counselling	

User charges permitted
 Service free of charge (2006 policy)
 Service free of charge (other policies)

Annex 2. Diseases covered by Chile's Universal Access with Explicit Guarantees (AUGE) reform

Incorporation period	Disease or illness	Requirements
1 July 2005	End-stage renal disease	
	Operable congenital heart disease	< 15 years
	Cervical cancer	
	Relief of pain from advanced cancer and palliative care	
	Acute myocardial infarction	
	Diabetes mellitus type I	
	Diabetes mellitus type II	
	Breast cancer	≥ 15 years
	Spinal dysraphia	
	Surgical treatment of scoliosis	< 25 years
	Surgical treatment of cataract	
	Total hip endoprostheses	≥ 65 years, severe, limiting hip arthrosis
	Cleft lip and palate	
	Cancer	< 15 years
	Schizophrenia	
	Testicular cancer	≥ 15 years
	Lymphoma	≥ 15 years
	HIV/AIDS	
	Acute lower respiratory infection with outpatient management	< 5 years
	Community acquired pneumonia of outpatient management	≥ 65 years
	Primary or essential hypertension	≥ 65 years
	Non-refractory epilepsy	1–15 years
	Comprehensive oral health	6 years
Prematurity		
Disorders in cardiac impulses and their conduction	≥ 15 years, need a pacemaker	
1 July 2006	Preventive cholecystectomy of gall-bladder cancer	35–49 years
	Gastric cancer	
	Prostate cancer	≥ 15 years
	Refraction errors	≥ 65 years
	Strabismus	< 9 years
	Diabetic retinopathy	
	Nontraumatic rhegmatogenous detachment of retina	
	Haemophilia	
	Depression	≥ 15 years
	Surgical treatment of benign prostatic hyperplasia in symptomatic patients	
	Orthotics (or technical help)	≥ 65 years
	Ischaemic stroke	≥ 15 years
	Chronic obstructive pulmonary disease with outpatient treatment	
	Severe bronchial asthma	< 15 years
	Respiratory distress syndrome in the newborn	

1 July 2007	Medical treatment of osteoarthritis of the hip and/or knee, mild or moderate	≥ 55 years
	Subarachnoid secondary haemorrhage to ruptured cerebral aneurysm	
	Surgical treatment of primary tumours of the central nervous system	≥ 15 years
	Surgical treatment of lumbar herniated pulposus nucleus	
	Leukaemia	≥ 15 years
	Outpatient dental urgency	
	Comprehensive oral health	60 years
	Severe polytraumatism	
	Urgent care of moderate or severe head injury	
	Severe ocular trauma	
	Cystic fibrosis	
	Rheumatoid arthritis	
	Harmful consumption and dependence on alcohol and drug	< 20 years
	Congenital analgesia	
	Severe burns	
	Bilateral hearing loss	65 years, need hearing aid
1 July 2010	Retinopathy of prematurity	
	Pulmonary dysplasia of prematurity	
	Bilateral sensorineural hearing loss of prematurity	
	Non-refractory epilepsy	≥ 15 years
	Bronchial asthma	≥ 15 years
	Parkinson disease	
	Juvenile idiopathic arthritis	
	Secondary prevention of end-stage renal disease	
	Laxative hip dysplasia	
	Comprehensive oral health in pregnancy	
	Relapsing–remitting multiple sclerosis	
	Hepatitis B	
Hepatitis C		
1 July 2013	Colorectal cancer	> 15 years
	Epithelial ovarian cancer	
	Bladder cancer	≥ 15 years
	Osteosarcoma	≥ 15 years
	Surgical treatment of lesions of the aortic valve	≥ 15 years
	Bipolar disorder	≥ 15 years
	Hypothyroidism	≥ 15 years
	Treatment of moderate hearing loss	< 2 years
	Lupus erythematosus	
	Surgical treatment of lesions of the mitral and tricuspid valves	≥ 15 years
Eradication therapy for <i>Helicobacter pylori</i>		

Source: National Health Fund.

**Health System
Governance, Policy and Aid
Effectiveness (HGS)**

**Health Financing
Policy (HFP)**

**Cost Effectiveness,
Expenditure and Priority
Setting (CEP)**

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