
Thailand Universal Coverage Scheme

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Abbreviations

Abbreviation	Term
A&E	Accidents and Emergencies
ART	Anti-retroviral therapy
CGD	Comptroller General's Department
CPI	Consumer Price Index
CSMBS	Civil Servant Medical Benefit Scheme
DHS	District Health System
DRG	Diagnosis-related group
EPI	Expanded Programme on Immunization
GDP	Gross Domestic Product
GNI	Gross National Income
HWS	Health Welfare Survey
HPV	Human Papillomavirus Vaccines
IHPP	International Health Policy Program
ILO	International Labour Organization
MOPH	Ministry of Public Health
NCDs	Non-communicable Diseases
NHSA	National Health Security Act
NHSO	National Health Security Office
NHSB	National Health Security Board
RW	Relative Weight
SHI	Social Health Insurance
SSO	Social Security Office
UCS	Universal Coverage Scheme
UHC	Universal Health Coverage

Glossary of terms

Age-adjusted capitation: The capitation payment for outpatient services has been adjusted for age composition of the registered population in the catchment areas since 2005. The adjustment is in favour of the young and old members due to the higher use rate by these two groups. The age-specific expenditure (product of utilization rate and unit cost per visit) is the main parameter for adjustments.

Blend model: The blend model is the way public and private providers are paid by NHSO and uses multiple methods that have policy goals for improved access and cost containment in mind. The main modes of the blend model are age-adjusted capitation for outpatients, DRG and global budget for inpatient care, fee schedule for specific high cost interventions outside capitation and DRG systems, and disbursement of high cost medicines and certain medical devices by NHSO. These fee schedules also apply to the global budget.

Catastrophic health expenditure: Catastrophic health expenditure is defined as households spending on health more than 10% or 25% of total household consumption.

Composite cost inflation: Cost inflation rate based on cost structure and medical inflation.

Comprehensive set of benefits package: The benefits package, which covers outpatient, inpatient, high cost care, prevention and health promotion); all inclusive of medicines and medical products in the National List of Essential Medicines

Consumer protection: The mechanism in the National Health Security Office (NHSO) which provides various channels for the consumer – the beneficiaries and all stakeholders including service providers – to communicate their inquiries, needs, problems, and obstacles in universal coverage scheme (UCS) and service provisions. Its goal, regarding the National Health Security Act 2002, is to promote awareness and understanding about consumer rights, service entitlements and duties, ensure that beneficiaries can access quality health services as needed, protect beneficiary's rights, and monitor quality service and reduce conflicts between beneficiaries and providers. The consumer voices are heard through hotline 1330, a twenty-four-hour service, official letters, consumer services centre within hospitals, consumer coordinating centres in communities managed by civil society organizations, annual public hearings, and other social media channels.

Contract model: The agreement between NHSO, as the UCS management body, and public and private providers, who agree to provide health services for UCS beneficiaries based on contractual agreements, bind NHSO to provide funding support and providers to offer quality services as mutually agreed. This model is a part of the concept "purchaser – provider split" to prevent conflicts of interest and selection bias.

Contractor primary health care networks: The provider networks, which agree to provide health services for UCS beneficiaries have to comply with the contract signed. For public providers, all public facilities are required to be providers under the UCS for primary healthcare and outpatient services. A District Health System (DHS), which consists of a district hospital and primary healthcare provider network within the district, is the main contractor. For private providers, only accredited private facilities can be enrolled into the scheme. Both public and private providers act as a contracting unit for primary healthcare (CUP) and will be paid in advance with an age-adjusted capitation payment for outpatients and prevention and health promotion services according to the population in the catchment area.

Costing method: There are many methods for calculating the unit cost of outpatient and inpatient services. This study refers to two methods. One is a conventional costing method, which applies a cost centre approach, where a simultaneous equation is applied to allocate indirect costs from transient cost centres to absorbing cost centres in order to estimate the unit cost for outpatient and inpatient services. Another is the quick method, which can be conducted much easier than conventional costing methods, however, its results are less accurate.

Civil Servant Medical Benefit Scheme (CSMBS): Government employees, parents, spouses and dependents below 20 years old (6% of the total Thai population) are automatically covered under CSMBS by a tax-financed non-contributory CSMBS as a fringe benefit. This scheme is managed by the Comptroller General Department of the Ministry of Finance.

Diagnosis related groups (DRG) under global budget: One kind of payment method used for inpatient budgets. The total of the relative weights is used to calculate the annual global budget. The payment per DRG weight varies and depends on the total number of adjusted relative weights in a year. The financial risk is transferred from NHSO to healthcare providers providing inpatient services.

Equalization of health workforce density: Measured by the personnel per population ratio across provinces to stabilize health personnel numbers in high density provinces and deploy more health personnel to lower density provinces.

Diagnosis related group creep: Unjustified changes in hospital inpatient data records with an intention to increase case-mix indices or relative weight in order to get a higher amount of reimbursement.

Full cost subsidy: The money paid to health care providers for the full cost of production including salary, material and capital depreciation. Balance billing is not allowed.

Means testing survey: The mechanism to review the economic status of the poor in order to issue a healthcare entitlement of free health services to low-income households.

Per capita budget: Health expenditure calculated on a per capita basis. It is estimated based on the average utilization rate of outpatients (visit per person per year) and inpatients (admission per person per year) multiplied with the unit cost per outpatient visit and unit cost per admission, respectively.

Point systems with global budget: This method is one type of fee schedule under a global budget.

Project-based payment: One kind of payment method used in the promotion and prevention budget. Examples include payments for prevention and condom distribution. Usually, this payment is managed centrally by NHSO.

Service utilization rate: The use rate from the household survey in the Health and Welfare Survey conducted by the National Statistical Office or a projection of the use rate to that budget year if no such survey in that year was conducted.

Three public health insurance schemes: In Thailand, the three public health insurance schemes are CSMBS, SHI, and UCS.

Typical provider network: In rural areas, a district health system with a catchment population of 50 thousand people in a district served by a district hospital (30-120 beds) and 10-15 health centres. In urban areas with no district hospital in the municipality, the Ministry of Public Health provincial or regional hospitals and health centres constitute the provider network for UCS outpatient care. Some private hospitals and their affiliated clinics also make up a provider network.

Universal Coverage Scheme (UCS): Thais who are not covered by CSMBS or SHI, which is around 75% of the total population, are covered by a tax-financed UCS, which provides citizens with an entitlement to health as a health safety net. UCS is managed by NHSO.

Thailand achieved universal health coverage in 2002, when the whole population was covered by one of the three public health insurance schemes: the Civil Servant Medical Benefit Scheme (CSMBS), the Social Health Insurance (SHI) and the Universal Coverage Scheme (UCS). While CSMBS and SHI are employment-related coverage, UCS is an entitlement to health care for Thai citizens. This means that unemployed SHI members or dependents of CSMBS older than 20 years that had lost their coverage are automatically covered by UCS. Evidence has shown favourable outcomes in term of improved access and financial risk protection with minimum prevalence of catastrophic health spending and impoverishment. This study reviews and assesses the budgeting and purchasing of services by the National Health Security Office (NHSO), which manages the publicly financed, non-contributory UCS.

Abstract

The per capita UCS budget is estimated based on the unit cost of a comprehensive benefits package (outpatient, inpatient, high cost care, prevention and health promotion) and the respective utilization rates. The annual UCS budget is a full cost subsidy, as the unit cost covers labour, material and capital depreciation cost, and no copayment. Balance billing is not allowed and strictly monitored and sanctioned. The full cost subsidy has justified the termination of supply-side financing since the inception of UCS. Annual budget allocations to government health facilities are curtailed except for major capital outlays. NHSO and partner institutes have developed skills in conducting conventional costing exercises and quick methods for annual adjustments of unit costs and strengthening data on utilization rates.

Because the UCS budget is finite for health services and is expected to be fully consumed by its 48.787 million members, NHSO is not allowed to overspend or keep reserves. Given this situation, NHSO has to apply closed-end provider payment. Age-adjusted capitation for outpatients is contracted to a primary healthcare provider network that consists mostly of Ministry of Public Health district health systems. Diagnosis related groups (DRG) under global budget are applied to purchase inpatient care, with a single rate of reimbursement per adjusted relative weight. For high cost services such as renal replacement therapy or antiretroviral treatment, NHSO pays both cash and non-cash through the distribution of dialysis and medicines. NHSO also exerts monopsonistic purchasing power to negotiate the best possible price given the assured quality of high-cost medicines and medical devices even from a monopoly or oligopoly product. Cost savings from these negotiations are additional resources to enable higher coverage to UCS members.

The incoherence of policy and practice on price setting, purchasing and regulation across the three public health insurance schemes is the major challenge. This requires political leadership to resolve inefficiencies in CSMBS, as it applies fee-for-service for outpatient services and 27 bands of cost weights for DRG payment without a global budget. The cost weights are in favour of super-tertiary hospitals. The expenditure per capita for CSMBS is four times higher than that of UCS.

Background

Thailand achieved Universal Health Coverage (UHC) in 2002, when the entire 65 million population was covered by one of the three public health insurance schemes. Government employees and dependents (6% of the total population) are covered by a tax-financed non-contributory Civil Servant Medical Benefit Scheme (CSMBS) as a fringe benefit managed by the Comptroller General, Department of the Ministry of Finance. Private sector employees (excluding dependents) (19% of the total population) are covered by a payroll-tax tripartite contributory Social Health Insurance (SHI) managed by the Social Security Office. The remaining 75% of the population are covered by a tax-financed Universal Coverage Scheme (UCS) managed by the National Health Security Office (NHSO) (IMF, 2000).

While insurance coverage by SHI links with employment status, UCS provides citizens with the entitlement to health. This means that, when SHI members retire or become unemployed and are no longer covered by SHI, these populations will be automatically transferred to UCS. Conversely, when UCS members are employed, they will be covered by SHI. For CSMBS, when the child dependents of government officials turn 20 years old, they are automatically transferred to UCS. This seamless transition across insurance schemes ensures health insurance entitlement to the whole Thai population.

Objective and scope

This study identifies the policy objectives of setting the payment rate for different benefits packages. It describes and comments on the procedural and technical dimensions of rate setting and purchasing services from healthcare providers, and whether these purchasing systems have achieved their stated policy objectives.

The scope of this study is within UCS managed by the NHSO and covers the process of setting the payment rate and regulating purchasing of a) outpatient services, b) hospital admissions, c) certain high cost interventions, which are paid outside of outpatient and inpatient services, and d) prevention and health promotion services.

1

Budget proposal for USC

Source of financing for UCS

UCS was a political manifesto during the general election in January 2001. To deliver the political promise of achieving UCS within a year after the election, it was not possible to collect premiums from UCS members, who were mostly engaged in the informal sector, due to their erratic and seasonal variations of income. Thus, a contributory insurance scheme would not have achieved UHC in a short timeframe to ensure continued coverage. A political decision was made to finance UCS with general tax revenues through annual budget negotiations and allocation through the Budget Bill, given the fiscal capacities during 2001-2002 (Mills et al., 2000); the economy had not yet fully recovered from the 1997 Asian Economic Crisis, which severely affected Thailand, and the country was still on an International Monetary Fund (IMF) package providing US\$17.2 billion bilateral and multilateral assistance to Thailand (Tangcharoensathien, 2012). Overall, there was a need to provide a health safety net for the population.

Policy objectives: use of public finance and copayment policy

Historically, CSMBS applied fee-for-service payments for a) outpatient services by reimbursing outpatients' bills directly to patients, and b) inpatient services by reimbursing to hospitals. Evidence shows that fee-for-service is the main cause of the high level of expenditures per visit shouldered by CSMBS due to an excessive use of branded medicines, which were reimbursed at full cost plus 20-25% mark up (World Bank Group, 2019). CSMBS, a non-contributory scheme with no copayment, does not send any signal to patients to use health resources efficiently. Hospitals have incentives to make higher margins from using branded medicines. Although CSMBS has applied Diagnosis Related Groups (DRG) without a global budget ceiling to pay inpatient services since 2008, it continues to pay outpatients based on fee-for-service. This resulted in a per capita expenditure for CSMBS that was four times higher than that of UCS. This higher expenditure is driven by the excessive use of branded medicines by both outpatients and inpatients, higher intensity of diagnosis, and higher payment for inpatient services under the DRG systems, which use 27 different cost weights in favour of teaching and super-tertiary hospitals. Further investigations on these variations are required.

In contrast, SHI since its inception in 1991 has adopted a capitation contract model with public and private competitive contractor hospitals (those having >100 beds and other infrastructure and staff requirements). SHI members are mandated to choose and register with their preferred contractor hospitals annually. SHI members can re-register with

a new contractor hospital once a year (by March of each year) to suit the changes of their workplace or residence. The capitation, inclusive of outpatients and inpatients for a year, has proven more effective in cost containment than the CSMBS fee-for-service model, with a decent quality of care (World Bank Group, 2019). Capitation sends a positive signal to contractor hospitals to use more generic medicines.

A simple model of SHI capitation since 1991 was developed based on a price and quantity approach. As there was no utilization rate data, we assumed a high estimate of three outpatient visits per capita per year and 0.1 admission per capita per year, while the unit costs of B 150 per outpatient visit and B 3000 per admission came from a conventional costing method in a number of hospitals. A conventional costing method applying a cost centre approach is time and resource consuming. In this case, there was no study in private hospitals, so that the average unit costs of government provincial hospitals were used. We used provincial hospitals of more than 100 beds as SHI contracts hospitals.

The SHI capitation was estimated by the following simple formula: (3 outpatient visits per SHI member per year x B 150) + (0.1 admissions per SHI member per year x B 3000) = B 750 per SHI member per year. A policy decision by the Social Security Board approved to pay a per capita rate of B 700 to its contractor hospitals for each SHI member registered with them (World Bank Group, 2019). The capitation is adjusted annually based on the utilization rate and unit cost of service from changes in medical technologies or the medical price index. However, there has been no capitation adjustment in SHI since the use rate was lower than the formula in the few initial years. Members of SHI are healthy workers in the private sector under 60 years old (retirement age), and there are no disabled persons in the SHI member pool. The Social Security Office monitors the use rate both for outpatients and inpatients for a potential under-provision of services, although they are not as competent as the NHSO in terms of auditing and quality assurance. This capitation payment covers outpatient and inpatient services. The exceptions are maternity care and child delivery, which are paid as a lump sum per delivery, and dental care, which is paid as a lump sum per visit and not more than two visits per year. International Labour Organization (ILO) experts advised the separation of payment for delivery and dental care from capitation of SHI. Thai reformists when introducing UCS did not follow this advice due to the administrative complexities of keeping individual records. The International Health Policy Program (IHPP) was not successful at addressing SHI separation for the payment of dental care and maternity.

Given the negative lessons from CSMBS on cost escalation and, vice versa, positive lessons from SHI on cost containment and greater efficiency, reformists in the Ministry of Public Health (MOPH) who designed the UCS strategic purchasing had proposed a contract model for UCS since its 2001 inception,

with a more advanced step beyond the SHI inclusive of capitation. This means that UCS applies capitation for outpatients and later adjusts for age composition through DRG under a national global budget for the payment of inpatient care. The two largest budget ceilings are for outpatients (based on unit cost and utilization rate) and for inpatients (based on unit cost and utilization rate), with a few small pots such as high cost care for anti-retroviral treatment (ART) and renal replacement therapy. Also, the economic context in 2001 (not fully recovered from the 1997 Asian financial crisis) was not favourable to the application of fee-for-service. The Gross National Income (GNI) per capita was US\$ 1990 (International Labour Organization, 2002), and government revenue was 16.2% of GDP (Tangcharoensathien, 2001).

The explicit policy objectives of UCS are to a) gain efficiency and cost containment through closed end payment and primary care fund holder contractual arrangements and exertion of the NHSO's monopsonistic purchasing power, and b) improve financial risk protection through expansion of the benefits package and ensuring access. To achieve these policy objectives, the NHSO applies different strategic purchasing such as benefits package development, which deepens the financial protection, and devises a blend of provider payment methods to boost service provisions and improve access.

When the budget estimate for UCS is a full cost subsidy to all providers for the agreed benefits packages, there is no need for copayment by users. Hence, balance billing is forbidden and made known to both providers and patients. In the case of balance billing, the hospitals are legally enforced to return the amount to patients. Although a copayment of B 30 (approximately US\$ 1) per outpatient visit or per admission with an exemption to the poor was introduced in 2002, it was terminated in 2006 due to political reasons and also to protect the borderline poor from copayment and facilitate improved access. The revenue from copayment was small, around 1-2% of the total UCS annual budget, while the administrative cost of copayment collection and the exemption mechanism of the poor (which must be reviewed every three years through means testing surveys) was much larger. Unlike fee-for-service, the closed end provider payment does not send any signal towards supplier-induced demand; therefore, copayments to discourage unnecessary service utilization by patients are not required, since abuse by the providers is not expected. The monitoring of balanced billing was managed through a consumer voice hotline, 1330, which is a twenty-four-hour service provided by the NHSO and effective sanction for demanding copayment. The NHSO manages successfully so that the amount of balance billing or copayment is returned to the patients. Full payment by offering services outside the benefits package was uncommon, as UCS benefits packages had covered almost all cost-effective high cost interventions through regular updating of the benefits package.

Since the full cost (including salary, material and capital depreciation) of service is compensated by the NHSO to government health facilities, the previous annual budget allocation to pay for labour and operating costs was terminated since the UCS inception in 2002. Depreciation costs are small for the purpose of replacing small equipment, while budgets for new capital such as infrastructure and purchases of major medical devices are allocated by the MOPH through annual budgeting processes. This ensures no duplication of parallel payments to these government facilities and supports a clear accountability framework between health care providers and the three insurance funds. A full cost subsidy is also provided to private health facilities on an equal footing with government facilities. This supports a smooth UCS operation, as private facilities are equally treated. The quality and standards of these private facilities are assessed by the NHSO before the contractual agreement.

Since the salary of government officials are protected by the Salary Act, which is managed by their respective Departments and Ministries, the NHSO has to defer the salary portion to MOPH to manage salary payment. In other words, the NHSO only manages the non-salary component of the UCS budget. Thus, an inequity in the total budget allocation across provinces emerges in favour of historically high-density locations of health personnel (which consumes higher staff cost but an equal portion of the non-staff budget compared with other provinces). The NHSO cannot hire, fire, or re-allocate health personnel. IHPP proposed an equalization of the health workforce density (measured by personnel per population ratio) across provinces through stabilizing high-density regions and deploying more health personnel in lower density provinces. This has been done with stable but slow progress the last 15 years.

Closed end annual budget: cost containment strategies

When closed-end provider payment is applied, the closed-end annual budget request is followed accordingly using the budget per capita of UCS members. The per capita budget was estimated based on the average per capita utilization outpatient rate (visits per capita per year) and inpatient rate (admissions per capita per year) multiplied by the unit cost per visit and the unit cost per admission. The multiplication of the per capita budget for outpatient and inpatient services by the total number of UCS beneficiaries (48.787 million) is the total resource required. The total has to be spent completely by providers, as the total represents the real costs of services. Therefore, no unspent funds for the NHSO carry over to the next fiscal year. Changes in the burden of disease are reflected by the utilization rate. Changes in medical technology and treatment profiles are reflected in the unit cost. Both parameters, either actual figures or projected figures when actual data are not available, are used in the formulae for the annual budget estimate.

In 2001, the reformists recognized that CSMBS and SHI deliberately did not provide health promotion or prevention in their benefits packages. The NHSO was then mandated to offer and purchase these services for the whole Thai population. Additional benefits beyond outpatient and inpatient services, such as health promotion and disease prevention, and high cost services outside outpatient and inpatient payment, also applied a closed-end budgeting system.

Closed-end budgeting is powerful in cost containment. The downside of under-service provisions is closely monitored by the NHSO through audits and a 24-hour call line for consumer protection and conflict resolution between providers and patients. The context, in which the majority of provider networks for UCS is non-profit, has facilitated the smooth implementation of UCS.

Closed end annual budget: cost elimination methodologies

Service utilization rate

In the initial years (2001 to 2005), preferred service utilization rates were obtained from household level surveys conducted by the Health and Welfare Survey (HWS), National Statistical Office, or projections for the budget year when no survey data were available. The 2001 capitation budget was B 1202 (US\$ 37.6 at an exchange rate of B 32) and calculated by using the use rate from the 1996 HWS, which was the only available data in 2001, and the unit cost in 1999. The subsequent HWS data was obtained in 2001, 2003-2007 and thereafter a biennial survey in 2009, 2011, 2013, 2015 and 2017.

Subsequently, outpatient and inpatient use rates referred to the routine administrative dataset developed by the NHSO when the dataset becomes mature and reliable. See Annex 1 for technical details and Annex 2 for a graphical explanation on how the first per capita budget (B 1202) was estimated.

The methods of estimating the capitation budget were successfully peer reviewed by actuaries from the International Labour Organization (Tangcharoensathien 2003) and published in an international peer-reviewed journal (Simborg, 1981) and Thai journal (NHSO Archives, 2018; St-Hilaire and Crépeau, 2000; Sriratanaban and Ngamkiatphaisan, 2003).

Unit cost

The unit cost for outpatient and inpatient services is a full cost estimation based on a conventional costing method (cost centre approach and simultaneous equation of indirect cost allocation), which includes staff costs, all operating costs such as medicines and diagnostics, and capital depreciation cost (Ngamkiatphaisan, 2005). The unit cost for the estimate of B 1202 per capita budget was based on the cost weight generated from conventional costs in less than 20 public hospitals to allow for a quick costing method.

Because establishing and maintaining conventional costing is not an easy undertaking, data from these 20 public hospitals are the only available dataset. The hospitals are not representative; three-quarters are district hospitals and the remaining are provincial hospitals. None are private hospitals. There is also some costing information from 50 health centres for the estimate of per capita budget.

The cost weight, a ratio between unit cost per admission and unit cost per visit from conventional costing, is applied to estimate the unit cost using the “Quick Costing Method” principle, as expressed in the following formula:

$$\text{unit cost per outpatient visit} = \frac{\text{total annual expenditure}}{\text{total outpatient visits} + (\text{cost weight} \times \text{total admissions})}$$

$$\text{unit cost per admission} = \text{cost weight} \times \text{unit cost per outpatient visit}$$

The cost weight is 16 for district hospitals and 19 for provincial and regional hospitals. There are no cost data from private hospitals; thus, the cost weight of district hospitals is applied, because a majority of private hospitals are smaller than 100 beds and have similar service profiles as district hospitals. This assumption was approved by the sub-committee, where a private hospital association representative is one of the committee members. MOPH maintains an annual report on total annual expenditure by items and throughputs by all 900 MOPH hospitals. This forms a basis for regular updates of the unit cost of outpatients and inpatients for the annual budget request. These hospital financial reports are reliable, as they are submitted to the Auditor General for review. The cost weights (16 for district hospitals and 19 for provincial hospital) are subject to adjustments from time to time when there are updated unit costs from conventional costing studies. The cost weights at district and provincial/regional hospitals are driven by real data. MOPH maintains annual financial and throughput reports by all hospitals (district, provincial, regional); these reports are inputs for calculating cost weights jointly by the NHSO and MOPH. The current figures of 16 and 19 are national averages from around 800 districts and around 100 provincial/regional hospitals countrywide. Later, the NHSO estimated the unit cost of inpatients by cost per adjusted relative weight, which involved dividing the annual operating expenditure for inpatients from the financial reports of MOPH hospitals by the sum of the adjusted relative weight.

When an average is used, providers having unit costs above the average will face financial difficulty, and those who have their unit costs below average will have financial gain. Special additional adjustments are made for districts having higher unit costs due to sparse population, such as mountainous or island districts. This ensures adequate funding for operation. Contractor provider networks keep the surplus from outpatient capitation payments for use according to their respective rules and regulations. All MOPH facilities transfer the NHSO budget

to a “hospital revenue” account, and the receipt and use of “hospital revenue” are governed by MOPH financial regulations.

Cost of prevention and health promotion

In 2001, there was no evidence for the calculation of the health promotion and prevention components in the initial per capita budget of B 1202. Researchers assumed that 20% of the cost of outpatient and inpatient care was used for health promotion and prevention.

A few years later, there were studies on the cost of health promotion and prevention benefits packages using activity-based costing (Simborg, 1981; Seiber, 2007). Estimating the cost of health promotion and prevention services is complicated, with different interventions for different populations with different use rates, such as immunization for children under five years old for 11 antigens according to the national Expanded Programme on Immunization (EPI) guidelines [BCG, Hepatitis B, DTP, OPV, MMR, JE and HPV], family planning for women and men in reproductive age groups, and cervical cancer screening.

Similarly, the cost of interventions outside capitation such as ART (introduced to the benefits package in 2006), renal replacement therapy (introduced in 2009), secondary prevention for diabetes mellitus and hypertension (pilot in 2009 and nation-wide in 2010), and medicines for psychotic patients (pilot in 2010, nationwide in 2011-2012, and transformed to community psychiatry in 2016) were estimated based on the incidence and prevalence of specific conditions, service provisions and unit costs of these services according to protocol.

Institutional capacities

The capitation rate in 2002 was estimated by a small technical team using use rates in 1996 and unit costs in 1999, with several assumptions where data were not available. Subsequently the capitation budgets for 2003-2005 were estimated by a technical team under the sub-committee on UCS financing chaired by a professor in economics. There were more up-to-date use rates when the Health and Welfare Survey conducted by National Statistical Office on an annual basis between 2003 and 2007. A projection of unit costs using composite cost inflation (based on cost structure and medical inflation) was also applied when there was no primary data for unit costs from either the conventional costing method or a quick costing method (Figure 1). The capitation budgets of 2006 onward have been conducted by an NHSO technical team, who initiated more complex formulae using more details.

NHSO has developed its internal capacities to estimate capitation rate. In addition, the NHSO also worked with partners such as IHPP and MOPH to update unit costs of outpatient and inpatient services on an annual basis using a quick costing method and to update the cost weights from a conventional costing method conducted in certain hospitals.

Figure 1
Composite cost inflation per annum

	Assumption	Cost structure % total cost	% growth of unit cost for outpatient and inpatient
Salary & wages	Public personal salary growth	30.10%	6.00%
Temporary wages for contract workers	Public personal salary growth	6.10%	6.00%
Other staff compensation	No growth	13.90%	0.00%
Drug & medical supply	Average 5 years of medical Consumer Prices Index (CPI) growth rate	31.40%	0.50%
Public utility	Average 5 years of electricity & water supply CPI	2.30%	0.00%
Other material cost	Average 5 years of CPI (exclude medical & elec. CPI)	16.20%	6.40%
Composite growth rate per annum			3.36%

Source: NHSO fund management manual, 2016.

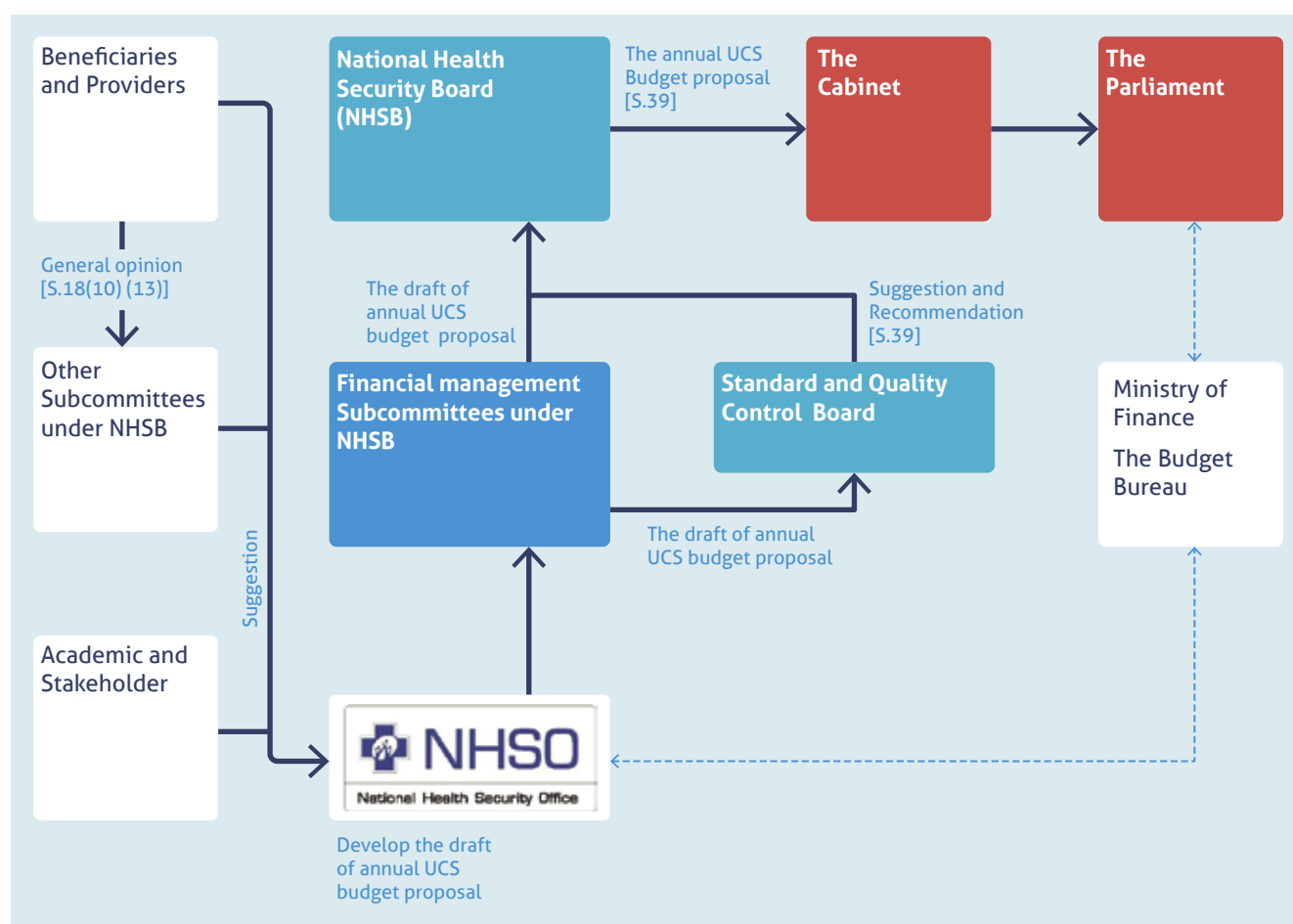
Stakeholder Involvements

The annual budgetary process of UCS involves extensive participation by stakeholders. The technical working group of the sub-committee on the Financing of National Health Security Board (NHSB) analyzes the unit cost, utilization rate, high cost interventions and all other benefits packages as approved by the NHSB, and also proposes a capitation budget. The budget is scrutinized and reviewed by all relevant actors including the Ministry of Finance, Bureau of Budget, technical experts, and representatives from health care providers. This process is transparent and involves evidence-based negotiation processes. The final proposal is then approved by the NHSB, as mandated by National Health Security Act (NHSA), Article 18(3), before submission to the Cabinet for approval of budget size and followed by the annual budget bill processes. Although the Cabinet has the power to comment and adjust the budget size in consultation with the Ministry of Finance, Bureau of Budget, and National Economic and Social Development Board, representatives from these agencies are members of the technical working group and review the budget size with the NHSO.

Because UCS is one of the national priorities set by the government and UCS members are the main stakeholders, with reference to NHSA, Article 29, "The Board shall submit a request for the budget of annual expenditure to the Cabinet". The NHSB submits the per capita budget for Cabinet approval, after which the Cabinet takes into account the proposed figures and the annual fiscal policies, economic growth and expected government revenue and tax.

The work of the NHSO including budgeting requires comments through an annual public hearing from beneficiaries and health care providers as mandated by NHSA, Articles 46 and 18(13) (Figure 2).

Figure 2
Stakeholder participation in the UCS budget



Source: Authors' synthesis from National Health Security Act B.E. 2545 (A.D. 2002)

Provider payment and purchasing of services

Overview of purchasing services

In 2016, the per capita budget approved by the Budget Bill was B 3,344.17. This consisted of the core benefits package of B 3,028.94 per capita (Item A in Figure 3) and specific interventions of B 315.23 per capita (Item B in Figure 3).

The product of the per capita budget (B 3,344.17) and UCS members (48.787 million) was approved as the total budget (B 163,152 million). The budget was earmarked to different sub-items A and B with specific provider payment methods as described in the last column of Figure 3; all sub-items adhered to the principle of a closed-end budget, which is fixed in a given year. The blended payment methods are designed to improve access and support financial risk protection, as providers will not offer high cost services such as dialysis or ART under capitation payment. Unlike outpatient and inpatient services, special interventions are not homogeneously required by the whole population. Therefore, there is a need for specific payment outside capitation.

In Figure 3, the cost of outpatient services (item A1) are paid to contractor networks based on age-adjusted capitation; inpatient services (item A2) apply DRG under a global budget; and prevention and health promotion services (Item A4, 11.9% of total budget allocation) apply a blend of capitation, project base and also a provision of vaccines due to their diverse nature of benefits packages for different target populations. Certain high cost interventions (such as stroke fast track, diabetic retinopathy, heart surgery, and heart transplantation), which are part of either outpatient capitation or inpatient DRG payment and have poor access due to underservice by a hospital, are managed centrally by the NHSO (Item A3, 9.1%) using a point systems with a global budget (called a fee schedule under a global budget). Rehabilitation (A5) and Thai Traditional Medicines (A6) also apply point systems under a global budget. Capital depreciation is allocated based on the population size in the registration and guided by a provincial plan to replenish medical equipment in order not to spread small resources too thinly. The no fault compensation to patients (A8) having adverse events (death and disability) from clinical services is paid on a fee schedule approved by the Standards and Quality Control Board.

Figure 3
Budget allocation to core benefits packages and specific interventions and related sub-items for UCS, Fiscal Year 2016

	Budget	Distribution, %	Provider payment methods
Item A: Core benefits package	B 3,028.94/capita		
A1. Out-patient services		33	Capitation
A2. In-patient services		31.7	DRG with Global Budget
A3. Central reimbursed*		9.1	Point system with Global Budget
A4. Promotion & prevention		11.9	Capitation, project based, vaccines, quality
A5. Rehabilitation		0.5	Point system with Global Budget
A6. Thai Traditional Medicines		0.3	Point system with Global Budget
A7. Capital depreciation		3.8	Capitation + provincial plan
A8. No fault compensation to patients		0.2	Fee schedule
Subtotal Item A		90.60%	
Item B: Specific interventions	B 315.23/capita		
B1. HIV/AIDS		1.8	Medicines fee schedule, project based
B2. Chronic Kidney Diseases		3.9	Peritoneal dialysis solution, fee schedule, project based
B3. Non-communicable diseases (NCDs) control and prevention		0.6	Fixed fee per patient
B4. Hardship areas adjustments		0.9	Criteria set by the committee
B5. Compensation to MOPH personnel		1.8	Criteria set by the committee
B6. Long-term care, home-based services		0.4	Fixed fee per patient
Subtotal Item B		9.40%	
Total Package A and B	B 3,344.17/capita		
Total budget		100.00%	
Total budget approval	B 163,152 million		For 48.787 million UCS members

Source: NHSO fund management manual, 2016. Note: *Specific services such as stroke fast track, diabetic retinopathy, heart surgery, and heart transplant are managed by the NHSO centrally.

Specific interventions that boost financial protection have a share of 9.4% (Item B, Figure 3) of total budget allocation. These include HIV/AIDS, which is paid by a blend model of distribution of antiretroviral medicines to providers with certain fee schedules and project-based payment such as prevention and condom distribution. Services for chronic kidney disease patients are managed centrally by the NHSO through

negotiation of peritoneal dialysis solutions and distributions to patients' home using the national post office. Certain fees for health care providers for home visits to prevent the most common complication of peritonitis and in-kind provisions of erythropoietin for healthcare facilities are also managed. Non-communicable diseases (NCDs) control and prevention are paid on a fixed fee per patient, which covers needs for annually laboratory tests and additional incentives for achieving diabetic control, as measured by an HbA1C level <7%. The cost of medical products distributed to providers (such as vaccines in the EPI program, erythropoietin for end stage renal diseases on dialysis and antiretroviral medicines for people living with HIV/AIDS) or patients (such as peritoneal dialysis solutions) are part of the budget.

Whenever the specific interventions in Item B are approved by the NHSB, it goes to the Cabinet for program and budget approval. In the subsequent year, it will enter the regular budgeting system through budget bill processes. This means there are no "unfunded mandates" for the NHSO or health care providers. All interventions and benefits packages are fully funded with an adequate budget. Providers are liable to report their services or patients provided for reimbursement, which is managed centrally by the NHSO. This gives opportunities for establishing several patient registries such as end stage renal patients who are on hemo and peritoneal dialysis and waiting for kidney transplant, and persons living with HIV/AIDS who are on ART. These disease registries provide invaluable information on treatment outcome and five-year survival rates compared with CD4 activity at the entry to hemo and peritoneal dialysis. Data on reimbursement are important for the subsequent year budget proposal.

Items B4 and B5, which are hardship allowances for health professional areas, are managed by a committee, while B6, "home-based long-term care", is paid on a fixed fee per patient. All specific interventions under item B require a provider's intensive report with various variables to the NHSO for disbursement, performance assessment and audit.

When the annual budget is approved, the NHSO produces annual budget executive guidelines and holds a national meeting with all provider networks to ensure the smooth execution of the annual budget. Benefits packages in sub-items A and B are "ring fenced" and cannot be used across items, as they are the costs of demands for health services by all UCS members. Any changes on budget size across items in Figure 3 will take place in the subsequent year based on reviews of the utilization and cost of service provision of these benefits packages.

It should be noted that when the NHSO transfers the UCS budget for whatever purpose, e.g., outpatients, inpatients, etc., the budget becomes the revenue of public health facilities or private hospitals if they are contractors. The management of personnel, hiring and firing, monthly payroll and additional

incentives such as overtime services are managed by hospitals in line with the relevant rules and regulations. The purchasing of medicines, medical supplies and medical devices are also managed by hospitals, except in cases of high cost medicines, which are purchased nationally by the NHSO and then delivered to hospitals or households, e.g., peritoneal solutions through the post office. In some cases, prices of high cost medicines are negotiated nationally by the NHSO and then hospitals procure them based on the negotiated price.

Paying for outpatient services

After the UCS beneficiary database was fully developed and reliable, the capitation payment for outpatient services was adjusted for the age composition of the registered population in the catchment areas in 2005. The adjustment is in favour of young and old members due to the higher use rate by these two groups. The age-specific expenditure (multiplications of utilization rate and unit cost per visits) is the main parameter for adjustments. Age-adjusted capitation in each province is $\pm 10\%$ of national average, while different contractor provider networks within a province will receive the same age-adjusted capitation rate. Age adjustment is conducted every three to four years (Figure 4).

Figure 4
Age-adjusted cost index for outpatient care

Age group (years)								All age groups
< 3	3 – 10	11-20	21 - 40	41 - 50	51 - 60	61 – 70	>70	
0.464	0.364	0.306	0.407	0.789	1.348	1.972	2.351	1

Source: NHSO fund management manual, 2016.

All UCS members have to register with a provider network capable of providing a comprehensive set of outpatient and prevention and health promotion services. A typical provider network in rural areas is a district health system with a catchment population of 50,000 people in a district served by a district hospital (30-120 beds) and 10-15 health centres (Tangcharoensathien et al., 2018). Urban areas have no district hospital. Therefore, MOPH provincial or regional hospitals and health centres are the provider network for UCS outpatient care. Some private hospitals and their affiliated clinics are also provider networks. Note that Thailand has developed a full geographical coverage of district hospitals in all 800 districts and health centers in all sub-districts (Tangcharoensathien et al., 2018).

The total budget for outpatients is based on the capitation budget for outpatients multiplied by the total registered population and adjusted by age. Advanced payment of capitation on a six-month basis supports a smooth provision of services for health facilities under MOPH, but monthly for

non-MOPH health facilities. The same capitation rate is equally paid to either public or private networks. Fair treatment between public and private networks facilitates smooth start-up of implementation. Private hospitals are familiar with the SHI inclusive capitation system.

When a patient needs to be referred to a higher level of care, contractor networks, as primary care fund holders, are liable to pay not more than B 700 for an outpatient visit when referred to MOPH hospitals, or the actual amounts as requested by non-MOPH hospitals. A patient bypassing their registered provider network is not covered by UCS and must fully pay the user charge out-of-pocket. Services from traditional healers and self-prescribed medicines are not covered by UCS. Contractor provider networks of primary care are liable to submit individual records of outpatient service statistics to the NHSO for monitoring and audits.

To facilitate mobile UCS members who seek jobs outside their domicile districts, the NHSO allows these members to re-register to a new provider network convenient for their use through electronic registration. In these cases, the NHSO deducts the remaining capitation from the old to the new registered provider network through real time electronic management.

Paying for inpatient services

DRG with global budget is used for paying inpatient admission of UCS members. It uses the following ratio: the budget approval for inpatients for the whole year (as part of the total capitation budget) to the total relative weight adjusted for length of stay of DRG of all UCS patients admitted to hospitals in a year. Relative weights are adjusted for length of stay for patients less than 24 hours or one-third the average or beyond the outlier trim points. When the global inpatient budget is divided by the total relative weights in a year, the amount is the compensation per relative weight to hospitals providing respective admission services. The global budget for inpatient care is fixed for the whole year.

The global budget safeguards against overspending such as DRG creep due to the budget's finite size. DRG creep is defined as changes in hospital record-keeping practices that increase case-mix indices and reimbursement (Limwattananon et al., 2015; Limwattananon, Tangcharoensathien and Prakongsai, 2007). The reimbursement per relative weight depends on the number in the denominator. While the numerator is fixed from the beginning of the year, the denominator changes (because of real changes in case mix or use rate such as flu epidemic or DRG creep), such that its increase lowers the reimbursement rate. The NHSO will introduce a stringent audit of inpatient claims and on-site audits of medical records guided by outliers or an incompatibility analysis. Monitoring by the NHSO neither shows rapid increases in case-mix severity nor increases in admission rates. Changes in the admission rate or unit cost are

adjusted for the following year to estimate the per capita budget for inpatients. The NHSO deducts the future inpatient reimbursement against the amount of over-claims by hospitals from the audit report or transfers the amount of under-claims by hospitals due to under- or mis-coding.

All public (district, provincial, teaching) and private hospitals providing admission services are treated under the same conditions of the global budget and DRG systems without prejudice. The same relative weight and pay rate to all levels of hospitals are applied, as the NHSO adheres with the principle that DRG are iso-resource consumption. Appendectomies provided by a teaching or a district hospital without complications or co-morbidity are offered the same payment.

When inpatients are discharged, hospital managers are required to submit electronically to the NHSO the discharge summary, which contains essential parameters, in particular the clinical diagnosis based on ICD10, co-morbidity and complications, procedure coding using ICD 9CM, patient's length of stay, use of the intensive care unit and surgery and discharge status. Upon correct verification by the NHSO of these data, a DRG code with relative weight will be generated and informed to the hospitals. At the end of the month, money will be wire transferred to the hospital based on its total monthly relative weight and the global budget that the NHSO holds. The total inpatient budget has to be spent and disbursed in full. The NHSO is not allowed to keep the balance as reserves, because the origin of the budget estimate is a full cost subsidy.

The NHSO has no deficit, because it disburses its entire budget to relevant providers. Financial risks are transferred to the providers, who are "commanders of health resources", as they know how to be efficient. The global budget and DRG systems for inpatient services can result in a lower baht per total relative weight adjusted for length of stay, equally shouldered by all providers in a year if there are large increases in the total national sum of total relative weight adjusted for length of stay (such as through DRG creep or epidemics). A higher baht per total relative weight adjusted for length of stay occurs if there are large decreases. DRG-creep and false coding are rigorously audited by the NHSO. The capitation budget for outpatient services is allocated to provider networks. It can be lower than the networks' total spending in a year given a high utilization rate (which can be uncontrollable, i.e., in the case of an epidemic, and controllable, i.e., unnecessary repeated appointments and visits) and high unit cost (which is controllable through the use of generic medicines and the National List of Essential Medicines). This strategic purchasing empowers healthcare providers to be financially responsive and cost conscious through an efficient use of resources. All providers under UCS use generic drugs in the National List of Essential Medicines. Unlike CSMBS, where providers have incentives to use brand versions outside the National List of Essential Medicines.

Despite universal coverage, there are backlogs of cataract surgery, which results in long waiting lists. To improve access, the NHSO, as a learning organization, has unbundled cataract surgery from the DRG system and pays on a fee schedule in order to boost surgery and reduce preventable blindness. Almost all cataract surgeries are 100% day surgeries unless there are (rarely) complications, which require admission.

Paying for accident and emergency services

To ensure that life saving interventions are promptly provided, accident and emergency (A&E) cases (medical, surgical, or accidents) can access any nearby hospital. For A&E cases treated as outpatients by providers in the same province, hospitals will be paid by the fund holder contractor network where the patients are registered based on fee-for-service or a negotiated rate. For A&E outpatient services provided by facilities outside the domicile province, the NHSO manages the payment based on what hospitals charge under a global budget held by the NHSO. The charges will be converted into a point system where one baht equals one point.

The NHSO pays the cost of ambulance services for the referral of patients requiring emergency attention (not only A&E) between hospitals. The cost of pre-hospital care and ambulance services from the spot events to hospitals are paid by the National Institute of Emergency Medicines through its network of telecommunications and systematic commanding systems. Certain local governments also subsidize ambulance services (first responders only).

For A&E cases treated as inpatients, hospitals in the same public health region will be paid under the DRG system within the regional global budget ceiling. For A&E cases which are treated as inpatients by hospitals outside the public health region, the hospitals will also be paid by the DRG system, but the NHSO guarantees a higher rate of B 9600 per adjusted relative weight to ensure that emergency services are promptly provided. Note that there are thirteen public health regions in Thailand, consisting of 5-6 provinces and 5-8 million people per region.

NHSO: an active monopsonistic purchaser

The NHSO, as a large purchaser for the whole Thai population, exerts its monopsonistic purchasing power when negotiating prices of certain medical products, in particular monopoly or oligopoly markets with assured quality from both domestic and international suppliers. These products are, for example, cataract lenses, medical devices such as stents for coronary arteries and certain medicines such as erythropoietin. Such monopsonistic purchasing power has yielded significant cost savings, which is the difference between market and negotiated prices and actual volumes procured (Tangcharoensathien et. al, 2018) (Box 1).

3 Implications for other countries

The payment methods adopted by the NHSO for UCS are good examples for other countries, especially in terms of budget containment and health systems efficiency. Since Thailand is not a rich country and UCS is solely financed by general taxes, affordability and financial sustainability are key policy concerns. Empirical evidence of impact from setting and regulating payments for services in the Thailand UCS are fiscal sustainability, covering the full cost of all health care providers, improved efficiency, a high level of financial risk protection and universal access to health services, which include medicines and no copayment at the point of service. These can be experiences to share in how setting payment methods in Thailand reflects good outcomes.

Fiscal sustainability

Thailand UCS applies a closed-end budget – it cannot spend beyond its annual budget ceiling. We strongly recommend using a closed-end budget, as it ensures efficiency and fiscal sustainability. The UCS budget has significantly increased in 17 years (Figure 5). This is a result of additional benefits packages, especially high cost interventions, an increased utilization rate and cost inflation. However, if compared to total government budget, it has been quite stable, at 5.9% (Figure 6). In terms of growth, although the annual UCS per capita budget has a higher growth rate in percentage than GDP per capita, the two have similarly increased (Figures 7 and 8).

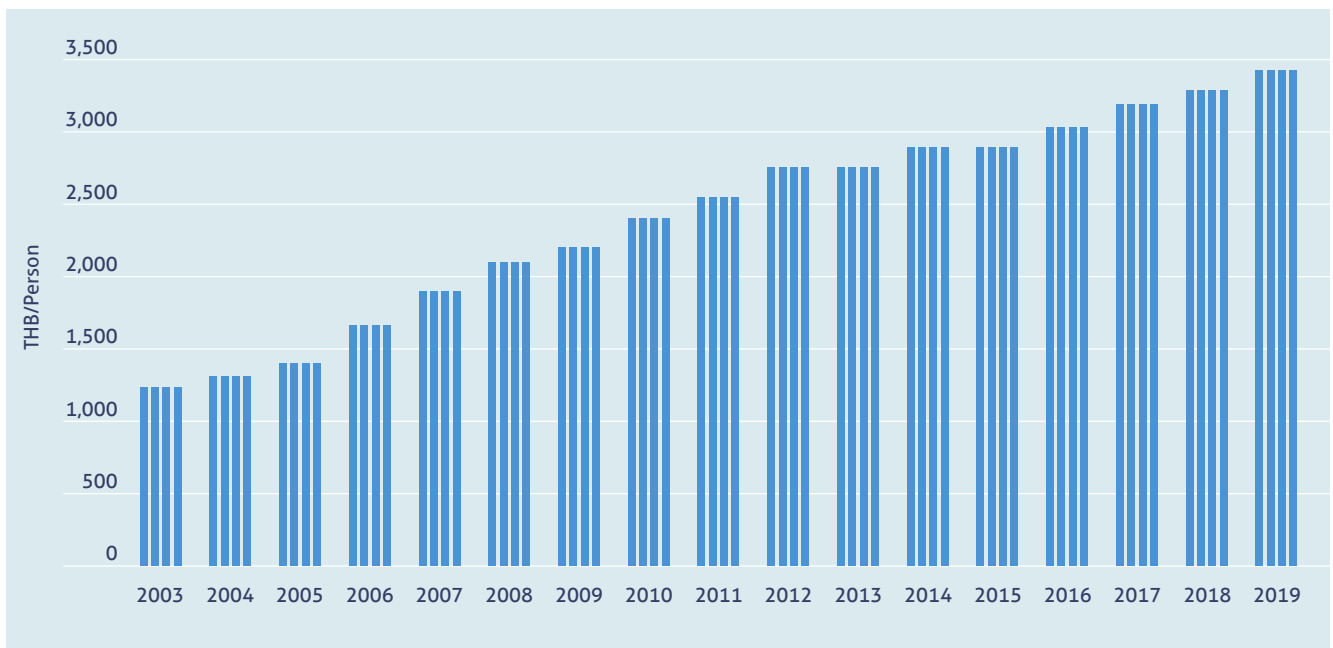
Box 1. Improved access to cataract lens replacement

Between 1996 and 2010, cataract lens replacement was paid based on DRG weights, with hospitals being compensated for the lens cost of B 4000. To solve the problem of the long waiting list, the private sector was encouraged to provide lens replacement for a lump sum payment of B 7000 inclusive of lens cost during 1997-2000.

Since 2011, cataract lens replacement has been unbundled from DRG systems and paid on a fee schedule of B 7000 and 9000 per case (without and with complication, respectively) and a lens cost of B 700 and 2800 for hard and foldable lens, respectively. This innovation boosted access to lens replacement, using an interrupted time series, from 0.8 lens per 100 000 population in 2005-2006 to 64.9 per 100 000 population ($p < 0.01$) in 2009-2013.

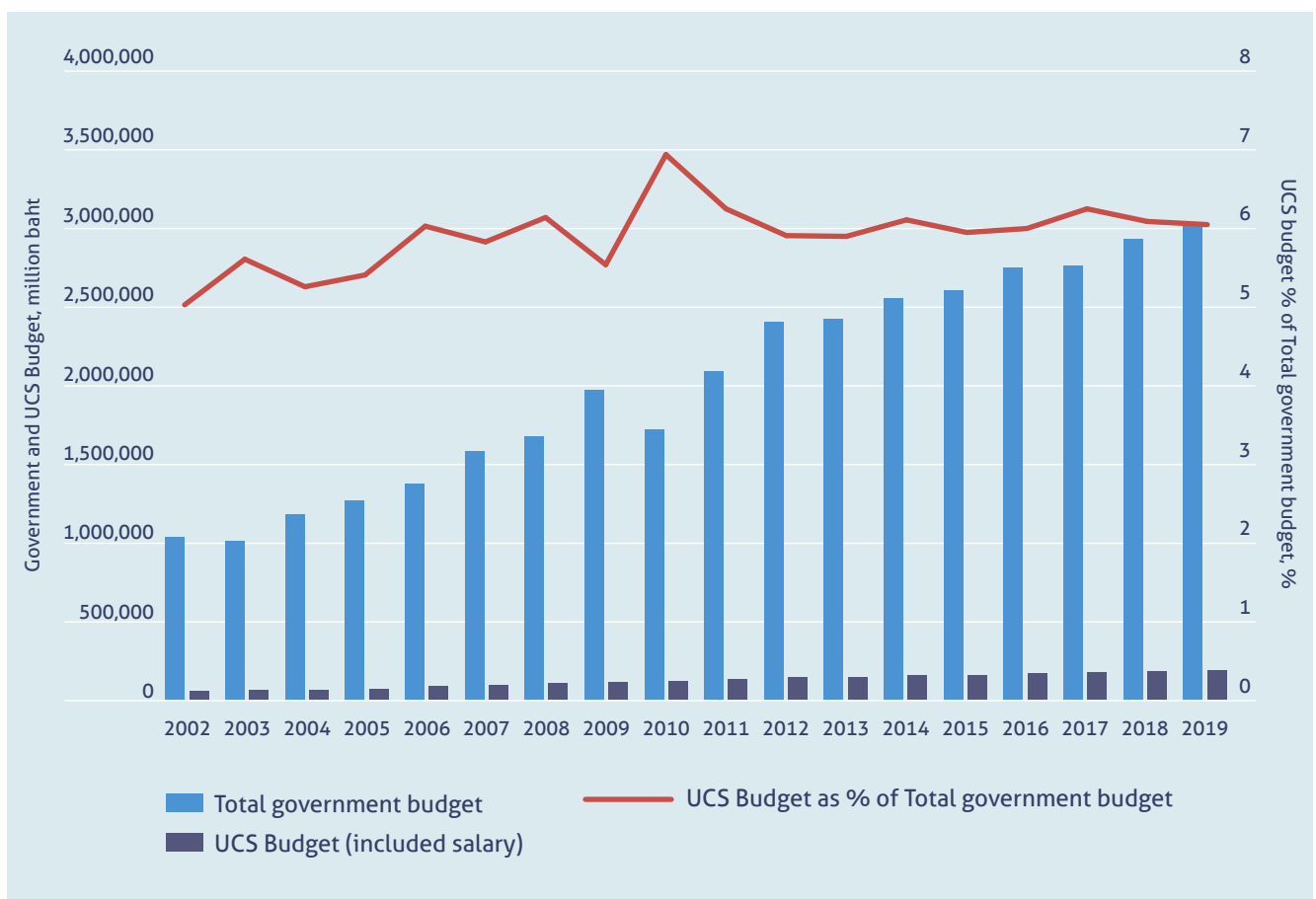
Source: Limwattanananon, 2017.

Figure 5
Per capita UCS budget, current price, 2003-2019, baht/capita



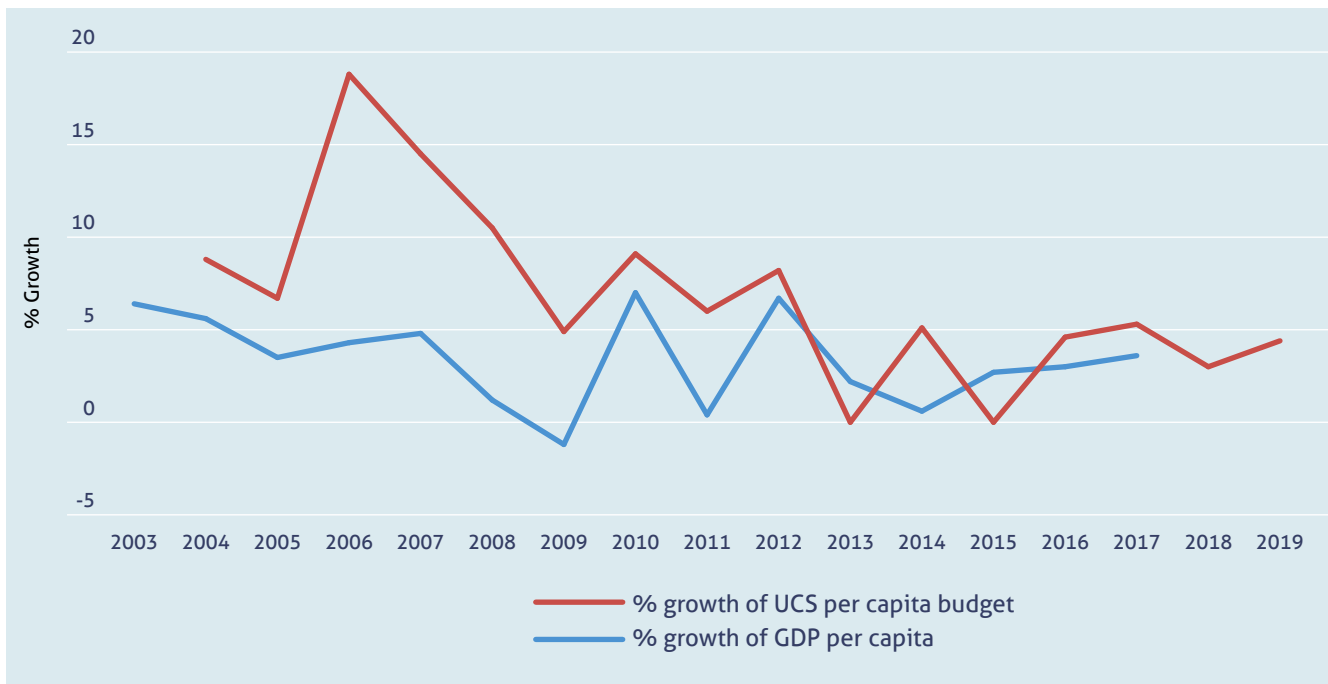
Source: NHSO, 2018.

Figure 6
Percent of UCS budget compared with total government budget



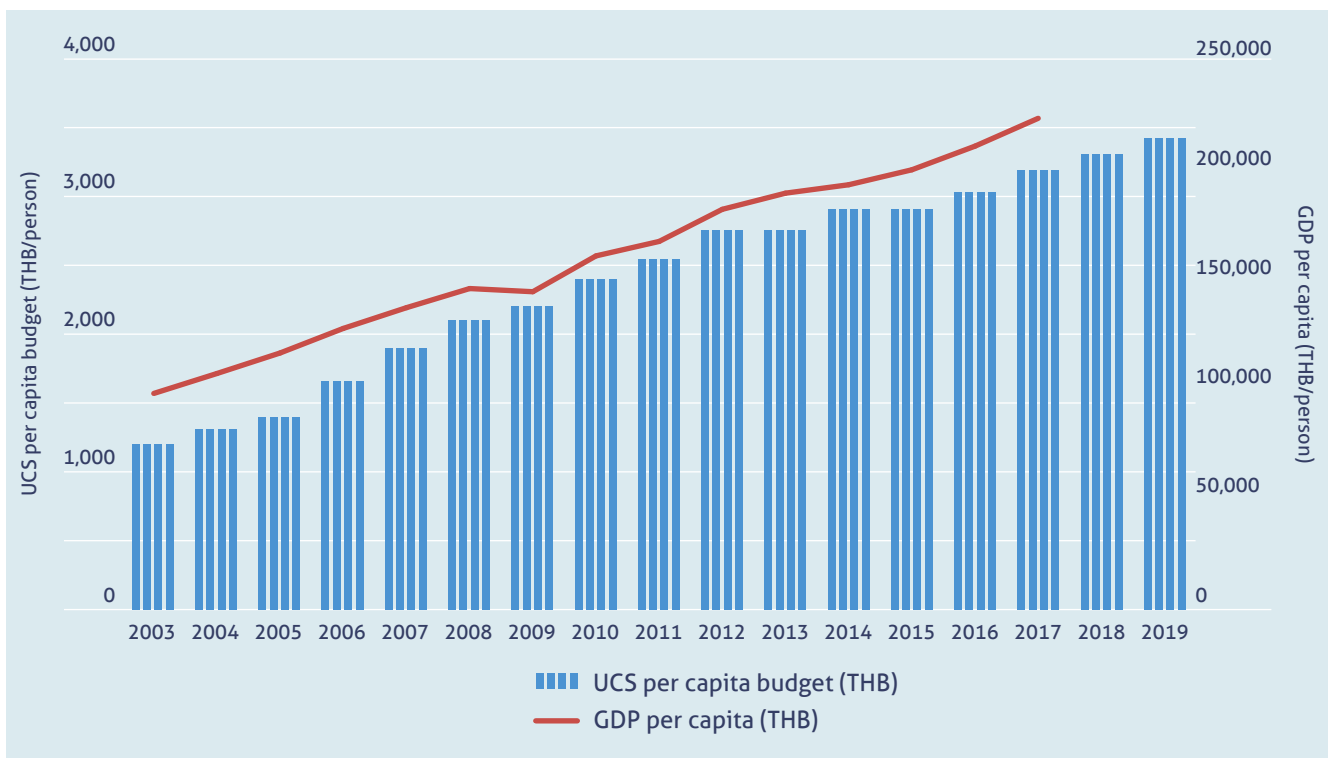
Source: NHSO, 2018.

Figure 7
Percentage growth in GDP per capita compared with the percentage growth in UCS per capita budget



Source: NHSO, 2018.

Figure 8
Growth of Annual GDP per capita and Annual UCS per capita budget



Source: NHSO, 2018.

Providers' revenue guarantee

Even though the Thai UCS has applied a strictly closed-end budget and capitation budget basis, the payment method has been flexibly designed to guarantee revenue to providers. For outpatient services and health promotion and prevention, the capitation budget is paid in advance based on the population in the catchment area. For inpatient services and high cost care, postpaid or retrospective payment has been adopted. These payments are guaranteed based on the full cost of services provided inclusive of salary, material and capital depreciation costs. DRG with global budget has been applied for inpatient services. Providers have to submit all discharge summary parameters to compute the DRG weight and receive reimbursement from the NHSO. At the beginning of the fiscal year, the minimum guarantee of the payment base rate per adjustment relative weight is announced, and it has been more than 95% of actual payment. Moreover, and importantly from the provider's side, revenue from all insurance funds have more flexible management than budget line items. These earnings from insurance funds become hospital revenue when spending is governed by MOPH rules and regulations. This was more flexible than budget line items in the years prior to UCS and are subject to external audits.

Efficiency

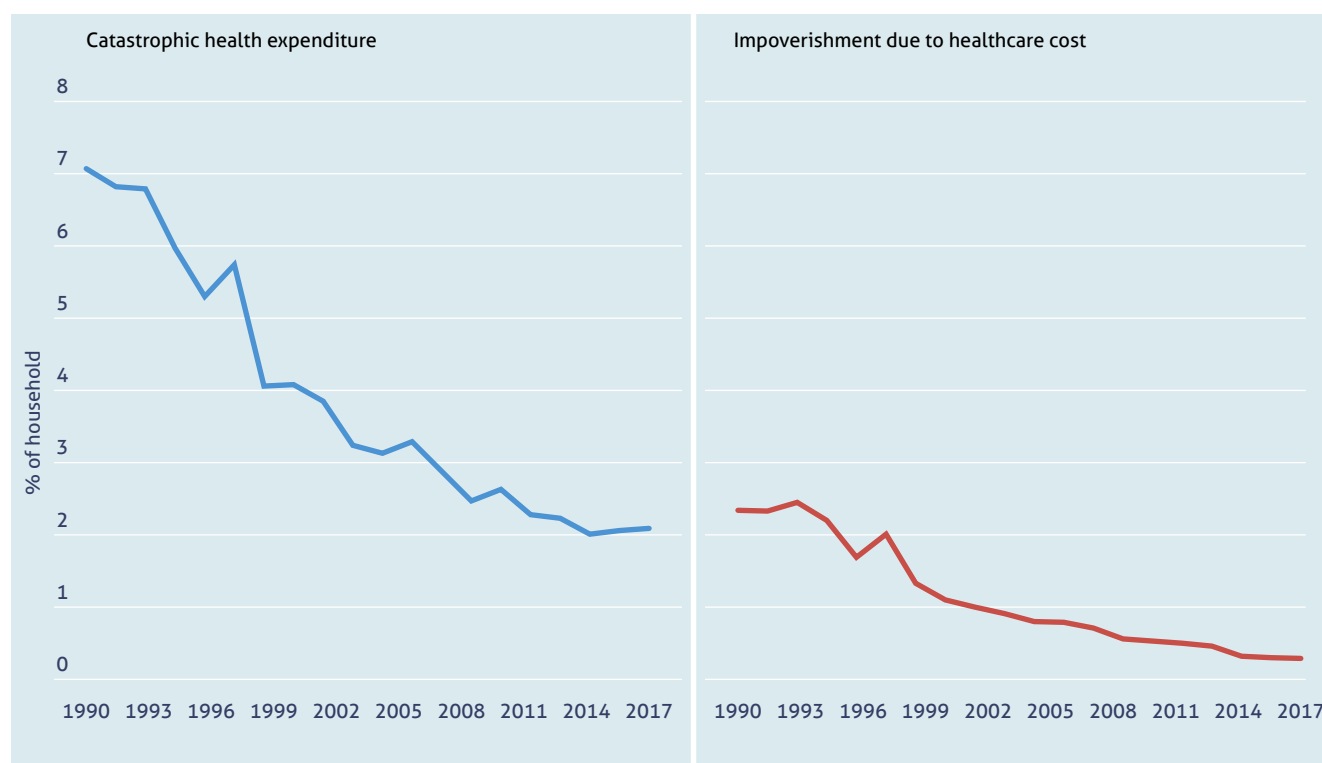
Health systems efficiency can be achieved through the use of gate keeping for primary health care and outpatient care. This applies an efficient allocation of resources according to need. Primary care promotes better access, with less transport cost and better continuity of care in particular the management of chronic non-communicable diseases. In addition, within the healthcare providers' lens, the capitation payment method may induce an under-provision of healthcare; but for the purchaser's side this can induce efficiency in budget management along with a measurement to prevent side effects of per capita payment such as monitoring, auditing and full cost subsidies of outpatient services. Lastly, as a manager of UCS, the NHSO exercises monopsonistic purchasing power to negotiate the lowest possible price with assured quality, hence gaining efficiency and significant cost savings for more service coverage.

Financial risk protection

Free from payment at the point of service can protect households from financial hardship due to health care cost and reduce barriers to health care utilization. Moreover, strict prohibition of balance billing is another measure to protect individual access to health care with no price barriers. Monitoring, auditing and complaint management systems are in place to monitor these events and introduce corrective measures. This results in a high level of financial risk protection in Thailand, as measured by the low prevalence of catastrophic health expenditure and impoverishment due to health care

costs. Both indicators have significantly decreased over the years (Figures 9 and 10).

Figure 9
Financial risk protection from healthcare costs: catastrophic health expenditure using a threshold of more than 10% of household consumption expenditure on health (left) and household impoverishment (right)



Source: NHSO, 2018.

Universality for health

In Thailand, public health insurance coverage by SHI is linked to employment status, while UCS provides citizens with an entitlement to health. This means that when SHI members retire or become unemployed and are no longer covered by SHI, they will be automatically transferred to UCS. Conversely, when UCS members are employed, they will be covered by SHI. For CSMBS, when the child dependents of government officials turn 20 years old, they are automatically transferred to UCS. This seamless transition across insurance schemes ensures the universality of health insurance entitlement for the whole Thai population. Entitlement to health is guaranteed from birth, as all 0.7 million newborns are registered with either UCS, or CSMBS if their parents are government employees.

Compared with the Comptroller General's Department (CGD), who manages CSMBS, and Social Security Office (SSO), who manages SHI, the NHSO is the most advanced purchasing agency. It has the expertise and capacity to implement and focuses all its efforts on purchasing health services. It has no mandate to collect premiums from members, as UCS is fully funded by general taxes through annual budget negotiations. SHI is part of the comprehensive social security systems for 14.6 million private sector employees in 444 868 establishments (pension, unemployment, sickness, disability, health and deaths compensations). SSO, with its workforce of 7223 staffs nation-wide, is also mandated to collect monthly premiums as a percentage of payroll from its employees and employers. It manages other benefits beyond health including the Workmen Compensation Fund (for work related injuries, sickness, disability and death compensations). CGD with its limited capacities of less than 30 staff, manages CSMBS as part of a comprehensive government employee's benefit systems, but cannot do strategic purchasing well.

There is no overall regulatory framework for price regulation in healthcare by purchasing organizations. SSO calculates its capitation rate and sets rules and regulations for provider payment, but it has limited capacity to conduct rigorous audits and discipline providers (in particular, for profit private hospitals) for the interests of SHI members. All three public health insurance schemes apply the National List of Essential Medicines as a drug benefits package and DRG (current version 6.2) as a reference for payment with variations. CSMBS does not apply a global budget, but has 27 bands of baht per relative weight, while SSO pays B 15 000 per relative weight for patients having relative weights higher than two. The NHSO applies a strict global budget and adjusted relative weight.

These price settings and regulations by the NHSO have achieved the stated objectives of cost containment, although the capitation budget increased from B 1202 in 2002 to B 3344.17 in 2016. This is mostly due to a) an expansion of high cost benefits packages such as ART and renal replacement therapy, b) an increased utilization rate of outpatient and inpatient care, and c) cost inflation and use of more diagnostic technologies such as CT scan for simple appendicitis. Compared with CSMBS, which continues to pay outpatient care by fee-for-service and inpatient care by DRG without a global budget and different bands in favour of teaching and tertiary care hospitals, UCS has four times lower expenditure per capita. It has also achieved financial risk protection to UCS members. UCS has reduced the probability of catastrophic health expenditure, defined as households spending on health more than 10% of their total household spending. There has been a greater reduction of household out of pocket spending among

high-income households, providing a real safety net for all—rich or poor (Limwattananon, Tangcharoensathien and Prakongsai, 2011). Thus, UHC (including all three public health insurance schemes) provides financial risk protection for the whole population (Limwattananon, Tangcharoensathien and Prakongsai, 2007; 2011). In contrast, the CGD and SSO neither have the capacities nor policies to exert their monopsonistic purchasing power.

Challenges lie with the fact that, despite the three insurance schemes applying similar benefits packages, each pays providers differently. For example, SHI pays inclusive capitation, though it recently has gradually adopted DRG for high cost inpatient services of relative weights more than two while still paying capitation if inpatient relative weights are less than two.

CSMBS, a tax funded scheme, does not have cost containment in its policy goals despite using public resources. It continues to use fee-for-service for outpatient care. For inpatient care, CSMBS replaced fee-for-service with DRGs in 2009. The design increased inequity across levels and types of hospitals. For example, the DRG payment is based on fee-for-service claims by hospitals, but combined these claims into 27 bands, which range between B 4131 and B 28 343 per adjusted relative weight. The average reimbursement in baht per adjusted relative weight is B 10 629 to B 13 630 for teaching hospitals, B 10 271 for regional hospitals, B 9346 and B 10 056 for provincial hospitals, and B 5731 and B 6113 for small district hospitals. This variation occurs despite the fact that these hospitals provide similar outcomes for the same DRG group. These rates are adjusted every one to two years. CSMBS has overspent its allocated budget every year for the last two decades, but it was compensated by the Government Central Fund, which was earmarked for contingencies and national emergencies and disasters.

An incoherence of policy and practice on price setting, purchasing and regulation is the major challenge and requires political leadership to resolve inefficiencies in CSMBS. There are several rounds of failed reforms due to a lack of reform capacity in the CGD and resistance from medical communities who are in favour of fee-for-services.

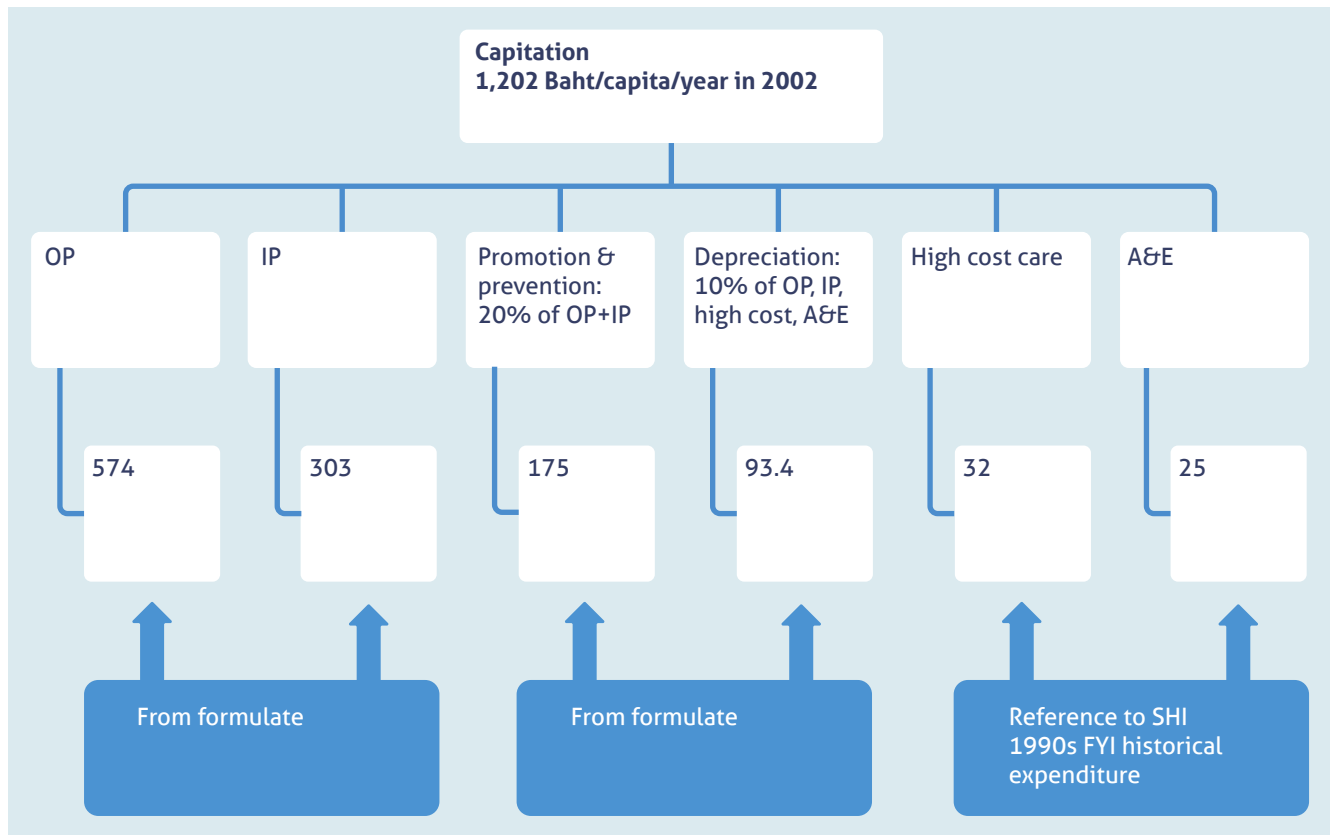
Annex 1

Estimates of per capita budget: B 1,202 for Fiscal Year 2002.

Row	Parameters	Unit	National average	Technical notes
1	Reported illness last two weeks	per capita per two weeks	0.1669	Data from HWS1996
2	Reported illness in a year	per capita per year	4.34	row 1 * 26 (to blow up to 52 weeks/year)
3	Use at institutional care	Ratio	0.661	sum row 5 to 9
4	Number of institutional visit	visits per capita per year	2.876	row 2 * row 3
5	Use at health centres	Ratio	0.151	
6	Use at district hospitals	Ratio	0.129	
7	Use at provincial and other public hospitals	Ratio	0.155	
8	Use at private clinics	Ratio	0.195	
9	Use at private hospitals	Ratio	0.031	
10	Cost incurred at health centres	baht per capita per year	39.4	row 2 * row 5 * B 60/visit
11	Cost incurred at district hospitals	baht per capita per year	123.8	row 2 * row 6 * B 221/visit
12	Cost incurred at provincial hospitals	baht per capita per year	186.9	row 2 * row 7 * B 278/visit
13	Cost incurred at private clinics	baht per capita per year	187.2	row 2 * row 8 * B 221/visit
14	Cost incurred at private hospitals	baht per capita per year	37	row 2 * row 9 * B 278/visit
15	Total OP cost incurred	baht per capita per year	574	sum row 10 to 14
16	Admission	Admission per capita per year	0.066	data from HWS1996
17	Use at district hospitals	Ratio	0.332	data from HWS1996
18	Use at provincial and other public hospitals	Ratio	0.488	data from HWS1996
19	Use at private hospitals	Ratio	0.18	data from HWS1996
20	Cost incurred at District hospitals	baht per capita per year	62.7	row 16 * row 17 * B 2857/admission
21	Cost incurred at provincial hospitals	baht per capita per year	175.2	row 16 * row 18 * B 5424/admission
22	Cost incurred at private hospital	baht per capita per year	64.7	row 16 * row 19 * B 5424/admission
23	Total inpatient service cost incurred	baht per capita per year	303	sum row 20 to 22
24	Total cost for curative care per capita per year	baht per capita per year	877	sum row 15 and 23
25	Preventive and promotive packages	baht per capita per year	175	row 24 * 20%
26	Capital cost, 10% of curative package	baht per capita per year	93	(Row 24+28+29) * 10%
27	Total package including capital	baht per capita per year	1,145	sum row 24 to 26
28	High cost care, adjusted from Social Health Insurance	baht per capita per year	32	reference social security scheme
29	Accident and emergency outside contract primary care	baht per capita per year	25	reference social security scheme
30	Total capitation (operating expenditure only, exclude capital investment)	baht per capita per year	1,202	sum row 27 to 29

Annex 2

How budget per capita, B 1,202, in 2002 was estimated



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