Impact of universal coverage policy implementation on public hospitals, and their responses that affect medical services

Jiruth Sriratanaban

Universal Coverage Scheme Assessment of the first 10 years: Impact on health systems
UCS impacts on health system:

Impact of universal coverage policy implementation on public hospitals, and their responses that affect medical services

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Acknowledgement:
This study is a part of the 10-year evaluation study of the Universal Coverage Scheme (UCS) in Thailand, TOR 5: Impacts of the Universal Coverage on the Thai Health Systems, funded by the Health Insurance Systems Research Office (HIRSO), Health Systems Research Institute (HSRI).

Background and study rationale

Thailand has established universal health coverage for all citizens since the end of 2001. From then, Thais are entitled to one of the three major public health security schemes. The first and the oldest one is the Civil Servants Medical Benefit Scheme (CSMBS) which provides health benefits for six million of government officers and their families, including parents. Likewise, around 10 million employees in the private sector receive health protection from the National Social Security Scheme (SSS). The rest of the population (47 millions) are covered by the National Health Security Scheme, commonly known as the UC scheme, enacted by law in 2002.

Although the UC scheme has been successful in increasing access to care and enhancing equity for the Thai population by strategies, such as supports for primary care, health promotion, and disease prevention, the UC policy and its implementation have put enormous pressure on hospitals for changes in the ways they operated and provided medical services, particularly institutionalized and specialized health care. These policy interventions were said to include, for example, close-ended hospital payment mechanisms, applications of new rules and regulations, and some requirements on patient management, such as disease management programs. Whereas private hospitals can choose whether to serve UC patients, public hospitals are required by the government to participate in the scheme. Therefore, public hospitals have to comply to all interventions—more or less—and adapt themselves in order to secure their positioning and maintain their financial viability. While other aspects of improvements and system performance were documented in previous studies on the Thai UC system, impacts of the UC on medical care and the hospitals that have led to changes in their organizations have not been clearly understood. Such organizational
responses in how medical services are provided may have affected significantly on many performance improvements in the Thai health system, as well as undermined gap areas—such as quality of care, future progress, and sustainability of the system.

Research objectives

This study aimed to assess impact of UC implementation on public hospitals, including organization management and their other responses. The assessment also includes medical care provision by hospitals, arrangement of specialized medical services, patient referral system, and patient access to hospital and specialized medical care.

Nevertheless, as a part of the larger series of the 10-year evaluation study of the UC scheme, key elements of the UC strategic purchasing were initially proposed before commencing the study by the steering team to form the conceptual framework of the study (Figure 1). Strategic purchasing was, thus, defined as health care purchasing approaches deployed by NHSO, which had specific intent to influence how health care is provided in one direction or another, such as containing cost or promoting access.

Figure 1  Conceptual framework

<table>
<thead>
<tr>
<th>UC implementation: Strategic purchasing</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Payment mechanisms</td>
</tr>
<tr>
<td>- Regulations and system re-design</td>
</tr>
<tr>
<td>- Selective contracting</td>
</tr>
</tbody>
</table>

Changes in provision of medical services between pre-/early UC period and 10 years later [Type, Quantity, Quality]
- Hospital care
- Specialized medical care
- Patient referral
- Access to hospital and specialized medical care

Observed or documented health system performance

Study methodology

Qualitative methodologies were primary tools for data collection, including document and literature reviews, and in-depth interviews.

Reviews of document and literature include related documents on the universal coverage programs, initiatives and system performance were gathered from the National Health Security Office (NHSO). These include annual reports, performance reports of projects, and minutes of the National Health Security Board and the executive boards. Nonetheless, the reviews are limited to those available from NHSO in a public domain, NHSO’s internal performance reports if they can be released, and published and non-published research reports on the establishment of UC and other related issues.
Furthermore, research literatures on UC in Thailand for the past 10 years (2002-2011) were searched from the PubMed database and the digital library of the Health Systems Research Institute in Thailand. Key words for the literature search included universal coverage, national health insurance, health security, universal health care, reimbursement, and Thailand. They were screened for findings on effects or impacts on medical care, patient referral, and hospitals, as well as how the hospitals responded or made changes to their structure, management, or service offerings.

In addition, in-depth interviews were conducted. The interviewees included the NHSO’s present director and former director on policy and planning, and hospital executives, management teams and physicians of nine selected case-study hospitals. Based on the literature findings and suggestions of the NHSO director on policy and planning, the group of the case-study hospitals was selected to include all major groups of public hospitals in UC, including two regional medical centers, one general hospital and two community hospitals of the Ministry of Public Health, two university hospitals—one in Bangkok and one in the upcountry, one Bangkok Metropolitan hospital and one military hospital. Three of them were in Bangkok, three in the central region, two in the northeastern region and one in the northern region of the country. Among these nine hospitals, three of them were intentionally selected from one province to represent three levels of MOPH hospitals—regional medical centers, general hospitals and community hospitals. The hospitals in Bangkok have joined the scheme later in 2002. The rest of the case-study hospitals in the other provinces besides Bangkok have participated in the UC initiative since it was piloted in April 2002.

Key questions for the interviews focused on institutional medical care and management of hospitals. They include information related to any changes in 1) organization policy and direction, 2) organization restructuring, 3) internal regulations, 4) internal financial incentive, 5) information systems, 6) hospital’s drug formularies and use of medicine and medical technology, 7) health care teams, 8) application of clinical practice guidelines, 9) settings of care and excellent centers, 10) public-private mix (Outsourcing), 11) patient referral and management of referral network, and 12) Patient access to hospital care and expensive or costly interventions.

Details are described in the TABLE 1 on the following page. Reviewed data and data collected from the interviews and provider observations were analyzed by content analysis and data triangulation. The scope of the analyses were limited to hospitalized or institutionalized care that are provided on the inpatient care basis, patient referral (excluding patients’ self-referral) and specialized medical care that require medical specialists or specialized medical personnel, or need advanced technology not generally available in public hospitals, or can be provided only by a small number of tertiary care medical centers, or use expensive medicine or medical instruments.
### Figure 2  Characteristics of the sample hospitals

<table>
<thead>
<tr>
<th>Hospital and location</th>
<th>Ownership</th>
<th>Missions and size</th>
<th>Unique situations or special comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 BKK</td>
<td>University</td>
<td>Teaching, Tertiary care 2200+ beds</td>
<td>- Largest university hospital&lt;br&gt;- Very few large public hospitals nearby&lt;br&gt;- A lot of referred cases from up-country</td>
</tr>
<tr>
<td>#2 BKK</td>
<td>Bangkok Metropolitan Administration</td>
<td>Teaching, Tertiary care 1000 beds</td>
<td>- Largest BMA hospital, located in the inner area of Bangkok&lt;br&gt;- Nearby BMA health centers are under different department (Department of Health) of BMA</td>
</tr>
<tr>
<td>#3 BKK</td>
<td>Military</td>
<td>Teaching, Tertiary care 700 beds</td>
<td>- Only one tertiary-care public hospital in north of Bangkok&lt;br&gt;- Working on many pilot projects with NHSO</td>
</tr>
<tr>
<td>#4 Rural, Central</td>
<td>MOPH</td>
<td>Tertiary-care, Teaching affiliation 680 beds</td>
<td>- Main referral center of the central region&lt;br&gt;- Located relatively closely to tertiary-care and general hospitals in the same, as well as nearby provinces</td>
</tr>
<tr>
<td>#5 Rural, Central</td>
<td>MOPH</td>
<td>Community 70 beds</td>
<td>- Fast growing district next to the Muang (Central) district of the province, with mixture of heavy and light industry, and agricultural sectors</td>
</tr>
<tr>
<td>#6 Rural, North</td>
<td>University</td>
<td>Teaching, Tertiary care 1400 beds</td>
<td>- Main referral center of the region and the province&lt;br&gt;- No general hospital in the Muang (central) district of the province</td>
</tr>
<tr>
<td>#7 Rural, Central</td>
<td>MOPH</td>
<td>General 200 beds</td>
<td>- Not located in the Muang district of the province&lt;br&gt;- Geographically central to many community but not by provincial boundary</td>
</tr>
<tr>
<td>#8 Rural, Northeastern</td>
<td>MOPH</td>
<td>Tertiary care 1000 beds</td>
<td>- Located in the Muang (central) district of the province&lt;br&gt;- Main referral center in the southeastern area of the northeastern region of the country</td>
</tr>
<tr>
<td>#9 Rural, Northeastern</td>
<td>MOPH</td>
<td>Community, OP 700-800/day Officially 60 beds, but operating at 120 beds</td>
<td>- Located next to the Muang (central) district of the province&lt;br&gt;- Rapidly expanded from 10 beds in 1984 to 30 beds in 1194 and 60 beds in 2001</td>
</tr>
</tbody>
</table>

Notes:  BMA = Bangkok Metropolitan Administration; MOPH = Ministry of Public Health
Results

I. Identified key components of UC implementation affecting medical services provided by hospitals, and specialized medical care

Arbitrary Phasing

The implementation of universal coverage (UC) in Thailand since 2001 has been changing every year. New initiatives or modification to previous initiations have become characteristics of the UC perceived by stakeholders, i.e. the NHSO staffs, providers, and academia. It is, therefore, very difficult to determine phases of UC implementation. However, the pilot phase during the first year of expanding health coverage, just before the enactment of the National Health Security Act, B.E.2544, was well recognized. For hospitals, the early phase of UC may include the first two years when there were lots of changes and adjustments to the payment system between “inclusive capitation”—in which both outpatient and inpatient services were paid for, and “exclusive capitation”—in which payments for outpatient and inpatient services were split. After that period, they were hardly differentiated.

Key strategic purchasing initiatives

With respect to the reviewed literature, interviews with key present and former NHSO management persons and selected administrators of hospitals participating in the scheme, the following features may portray key strategic purchasing initiatives of the UC schemes that significantly influence how health care providers in Thailand behave, and that have forced the providers, particularly hospitals, to make changes in their management and providing care to patients.

1. Establishment of health care purchasing using close-ended payments

According to the interview findings from both NHSO executives and hospital teams, the application of close-ended payment may be the most influential component of the UC purchasing arrangement, leading to many changes in how hospitals have been managed and how patient care has been provided. The major payment mechanisms that were used or have been used in the UC scheme consist of “inclusive” capitation payment and “exclusive” capitation payment. The inclusive capitation is the payment mechanism set for both outpatient and inpatient care. It was used in the early years of the UC in some provinces, and was used for paying participating private hospitals for many years until 2009. These per-capita initiatives replaced budget allocation by block grants to public hospitals under Ministry of Public Health (MOPH), and annual per-head revenue from selling health cards and welfare budget for subsidizing care for the poor.

The exclusive capitation portrays the combination of capitation payment for outpatient services and case-based payment by diagnosis-related groups (DRGs) with global budget for inpatient care. This combination of the payments was also used in the rest of the provinces in the country, including Bangkok, and later became the standard provider-payment approach for the UC scheme country-wide from 2005 onward. The capitation payments have been paid to “Contracting units for primary care or CUPs.” CUPs are responsible for cost of patient referral, usually at predetermined rates set by MOPH or agreed
upon in each NHSO regions, unless referred patients are treated as inpatients at referral centers to which DRG payments were made. Provincial general hospitals and tertiary-care medical centers, therefore, depended partly on referrals from community hospitals in order to get additional reimbursement based on inpatient DRGs.

Due to the global budget, the payment rates for one DRG relative-weight score have been varied from one year to another. Moreover, NHSO has arranged the DRG payment system into regional funds and central funds for high-cost care. Consequently, the payment rates may vary among NHSO’s 13 regions. Differential rates may also be applied for admissions within a region, and referred patients from other regions. The rates are set by the NHSO regional committees.

Nevertheless, several hospitals have concerned not only on the financial risk imposed by the close-ended payments, but also the nature of change and change management used by NHSO. Both affect hospital responses. In early years, NHSO changed its policies, regulations and requirements quite frequently. Although changes are less frequent at present, the lead times are short. Some policies or initiatives allowed to unrealistically short time for preparation on the provider side. It was quite often that NHSO announced new programs, benefit offerings, or ruling on claim disputes in the middle of a fiscal year, without additional budget. Some applied retrospectively. Moreover, its public relation activities create unrealistic expectation among the public, starting with the campaign “30 baht for treatment of all diseases,” while exceptions do apply in practice.

2. Emerging policy to strengthen primary care

The implementation of the UC scheme came with the prevailing policy to promote primary care, commonly named by the slogan, “Klai-ban-klai-jai” or “health care that is warmly close to your home.” It has been used as a key tool in an attempt to increase health care access for patients, especially in the rural areas, while containing operating costs. Hopefully, it would raise the overall efficiency of the system. The approach is complimented by the assignment of a “catchment area” to a contracting unit for primary care (CUP), to which the capitation payment is paid.

As a result of the policy, participating hospitals have to engage into primary care, one way or another. They generally become centers of district health care, responsible for population in their catchment areas. Acting as a CUP, each hospital—a community hospital in a rural area and a general hospital or tertiary-care medical center in a city area—has to manage a network of primary care providers, called primary care units (PCUs). PCUs are usually MOPH local health centers for areas outside Bangkok. In cities, like Bangkok, some private clinics become PCUs, called “Community clinics.” Originally, it was compulsory that people who were registered residents in each assigned catchment area were required to register at their nearby PCUs, and/or a local hospital. Later, the requirement is slightly relaxed as they may choose to change their primary providers to those close to where they actually reside or work, or if they live closer to providers of nearby catchment areas. It is worth noting that PCUs or hospitals are not allowed to reject registered patients.

During the second to the fourth years of UC implementation, the policy required that there was PCUs with at least one-session of physician care available at the sub-district (tambon) level. There was also promotion for medical-residency training in family medicine
training and re-training campaigns for medical specialists into family medicine. The popularity has later been fading as physician-based PCU initiatives were retrenched owing to impracticality and limited human resources in most areas, as well as lack of long-term support and financial incentives.

3. Capital financing and capital budget allocation

The initiative of the excellent-center policy since 2006 has set opportunities for selected tertiary-care hospitals to become regional referral centers for cardiovascular, cancers, and trauma patients. At present, this expands to include neonatal intensive care and cerebrovascular stroke. Based on availability of expertise, they include some MOPH regional medical centers, university hospitals, tertiary-care military hospitals and Bangkok Metropolitan medical centers. Capital budget from the overall UC budget were allocated to these institutions, investing in equipment and other infrastructure. In certain programs, payment arrangement included some incentive payments for medical staff, such as trauma centers. Patient referral networks have been set up by geographic areas. Nevertheless, capital budgets continued for only a few years.

4. Selective contracting

NHSO has initiated a number of purchasing arrangements with providers—tertiary-care hospitals and community hospitals acting as contracting units for primary care (CUPs)—for particular health care and service programs separated from the core packages of general outpatient and inpatient care. Most of these initiatives have been done through selective contracting—separated health care purchasing contracts for specific health care services, usually come with specific requirements for services, patient registration, information system, reimbursement and monitoring. In the NHSO context, sometimes, they may be called “vertical programs”, “vertical purchasing arrangement”, and “disease management.” These include programs for high-cost care or management of chronic diseases, such as leukemia and lymphoma, and diabetic screening. There are also programs to increase access to services, such as cardiac surgery, cataract surgery, peritoneal dialysis for chronic renal failure, and medicine for HIV/AIDS patients. These purchasing contracts are generally based on pre-determined guidelines set by NHSO committees, use guaranteed fee-schedule payments, and require online data, or performance report, submission for reimbursement.

In addition, there are separated purchasing systems for health promotion and disease prevention (PP), which include fee-schedule programs for institution-based services, such as antenatal care and child immunization, and project-based programs. In the latter, participating providers can submit PP projects for NHSO approval, after which supplemental budgets are provided. Besides, NHSO manages centralized purchasing programs for some medicines and distribute them to requesting hospitals, especially those that are under the government “Compulsory licensing” or CL, such as Clopidogrel (Plavix).

5. Quality-based purchasing initiatives

NHSO also provide incentives to promote quality improvement among providers. Funding supports are offered to UC-participating hospitals related to hospital accreditation (HA), ranging from supporting budgets for HA training, consultancy, HA accreditation
surveys, and bonus payments for getting accredited status. The offerings may vary by year and from regions to regions. Some NHSO regional offices also implement pay-for-performance (P4P) based on selected performance indicators, such as meeting targets for pap smears screening.

II. Impact of UC implementation on hospitals: Findings from the literature

While there are a number of studies indicating how the UC establishment benefits patient satisfaction, access to care, household expenditure, and health-system equity, (1-3) studies on any impacts of UC implementation on providers, particularly hospitals, and how they responded are quite limited. During the early years of UC, a study by Thailand Development Research Institute (TDRI) showed that public hospitals experience sudden increase of outpatient workload, and that UC close-ended payments and per-capita budget allocation led to financial troublesome, especially among large hospitals located in cities. (4) A considerable difference in what should be the appropriate per-capita budget was identified between the government-approved figure in 2002 of 1202 baht per person per year (PPPY) (5) and other proposed figures of 1,800 baht PPPY, (6) up to around 2,400 baht PPPY. (7) Moreover, the budgets approved by the government for later fiscal years generally fell short of the amounts originally proposed by NHSO, such as 1,396 versus 1,510 in FY2005 and 1,396 versus 1,800 in FY2006. (8) putting enormous financial pressure on public hospitals. Nevertheless, the study of 640 public hospitals by Ngorsuraches found that, besides hospital characteristics and market factors—such as hospital type and number of population in a province, several manageable factors, including inventory turnover and ratio of number of patients to total employees, and service mix variables were associated with the hospital profitability or loss. (9)

Changes in provider funding have led to both macro- and micro-allocation funding. During early years of UC, large teaching and tertiary-care hospitals in the Bangkok and big cities, in particular, were in a deficit situation. Many could not cover salary costs while lacking mechanisms to relocate manpower as theorized by the application of per-capita payments envisioned by policy makers. As noted by Nitayarumphong, (10) 29 of 76 provinces had to request for MOPH contingency fund by the end of 2001, right after expanding the scheme nationwide. To help ease capitation-losing hospitals, the salary component was then deducted from the capitation amount before being allocated to hospitals. Subsequently, this has dramatically reduced pressure for hospital manpower relocation. (11)

Choices of provider payment mechanisms also affected hospital behaviors. The evidence from one evaluation study also showed that there were differences in patterns of patient referrals in areas using inclusive capitation and exclusive capitation implemented during the first year of UC. (12) Comparing to before and after UC establishment, hospitals in provinces using the inclusive capitation tend to refer out fewer patients whereas hospitals under the exclusive arrangement made more outbound referral. The differences were more prominent in surgical rather than medical conditions. With respect to medical practice, a survey of physicians by the Medical Council of Thailand in 2002 showed nearly 60 percent of the respondents indicated that they received policies from hospital administrators to help reduce expenses on drug and medical supplies, and some 53 percent changed their medical practices, by which treatment outcomes might be compromised (67 percent). (13)
In sum, the evidence from existing literature is rather limited in explaining how public hospitals participating in the UC schemes have responded to the interventions and initiatives launched under UC. To make the matter more complicated, there were some evidence that other factors may play some significant roles in transforming how hospitals provide care during the same period, including cost control initiatives used by the Civil Servants Medical Benefit Scheme (CSMBS), and the expansion of the hospital accreditation program.\(^{14}\)

III. Impact of UC implementation: Findings from the case-study hospitals

In general, the most influential purchasing initiative by NHSO as stated by all of the sample hospitals was the use of the close-ended provider payment mechanisms, i.e. the capitation payment and the inpatient payment based on diagnosis-related groups (DRGs) with a global budget (GB). Nonetheless, another real challenge to the hospitals as a result of UC implementation was the nature of changes and NHSO’s ways of implementing purchasing initiatives and programs.

a. Management of provider organization and provider responses

1. Organization policies and internal regulations:

NHSO’s purchasing initiatives under the UC scheme put pressure to all hospitals for higher efficiency, largely on cost containment, although some help promote quality improvement. The tertiary-care hospitals also initiated policies on development of primary care and its network, and participated in the NHSO’s excellent-center programs.

Owing to the use of close-ended payment mechanisms, all sample hospitals set clear policies toward controlling resource utilization and containing cost. All sample hospitals have introduced stricter internal regulations related to medical treatment, supporting the use of the ED and generic drugs. They have reviewed their drug formularies, brought in more generic items and reduced trade-name items. The hospitals of MOPH also have to comply with the MOPH restrictions on hospital formularies and the national essential drug (ED) list, particularly the community hospitals (Hospital #5). By contrast, the university hospitals (Hospital #1 and #6) have more liberty and still keep several drug items outside the ED for certain reasons, namely being referral centers, having specialist training programs and clinical research, and maintaining forefront medical excellence. The university hospitals, therefore, risked financial losses, particularly on inpatient cases. (See Figure 3)
**Figure 3** Reimbursed amounts under the DRG-with-global-budget (GB) payment vs. hospital charges of UC inpatients in Hospital #6

<table>
<thead>
<tr>
<th>Years</th>
<th>Total charges (Mil.baht)</th>
<th>% Reimbursable under the DRG-GB payment</th>
<th>% Reimbursed compared to reimbursable amounts</th>
<th>% Reimbursed compared to Total charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>266.7</td>
<td>100</td>
<td>93</td>
<td>93</td>
</tr>
<tr>
<td>2003</td>
<td>426.9</td>
<td>88</td>
<td>88</td>
<td>78</td>
</tr>
<tr>
<td>2004</td>
<td>664.3</td>
<td>64</td>
<td>90</td>
<td>57</td>
</tr>
<tr>
<td>2005</td>
<td>764.8</td>
<td>66</td>
<td>97</td>
<td>64</td>
</tr>
<tr>
<td>2006</td>
<td>811.3</td>
<td>75</td>
<td>97</td>
<td>73</td>
</tr>
<tr>
<td>2007</td>
<td>1,047.6</td>
<td>74</td>
<td>100</td>
<td>73</td>
</tr>
<tr>
<td>2008</td>
<td>1,111.7</td>
<td>82</td>
<td>87</td>
<td>72</td>
</tr>
<tr>
<td>2009</td>
<td>1,197.3</td>
<td>81</td>
<td>81</td>
<td>66</td>
</tr>
<tr>
<td>2010</td>
<td>1,269.4</td>
<td>77</td>
<td>78</td>
<td>60</td>
</tr>
</tbody>
</table>

Non-MOPH tertiary-care hospitals had to engage more systematically into primary care since they had to take responsibility of surrounding population in their catchment areas. For example, Hospital #1 decided to fully participate in the UC scheme, including primary care and tertiary care. Although it is a university hospital focusing on tertiary care, the hospital executives agreed to support the government policy (Partly maybe due to its compulsory nature). As the area lacks public and participating hospitals in the nearby area, it has to take responsibility for a wide catchment area and a large population. As a result, it had to establish a new segment of primary-care services, and forming network with a separated management system. However, the hospital maintains its tertiary-care positioning, research-oriented functions, and patient access to high-tech, high-cost technology.

Hospital#3 took responsibility for a large catchment area of Bangkok (Population > 200,000) since there was no other public hospital nearby. With limited primary-care capacity and manpower, it had to issue internal job rotation policies on medical staffs. Later, the hospital management expanded its health insurance unit and proactively went for a public-private partnership initiative by forming network with community-based private clinics. The hospital has become the network headquarter and the referral center for secondary and tertiary-care levels. Still having experienced financial loss, it also began utilization review activities and has participated in many NHSO’s pilot projects with extra-funding or cost-saving potential.

The pay-for-performance incentive for hospital accreditation helps hospitals, particularly small ones, engage in clinical quality improvement. Hospitals get supports for quality management trainings and for costs of accreditation survey. The support is around
50,000 baht, which may vary across regions. It is considered too small by larger hospitals, such as Hospital #2, #6 or #8, but they engaged in clinical quality improvement under the hospital accreditation program, nonetheless.

2. Organization restructuring:

NHSO’s strategic purchasing initiatives have imposed many requirements to the hospitals in responding to patient demands, processing reimbursement, and cost containment. As a result, all of the study hospitals upgraded pre-existing work units or established new organizational units, divisions, or offices to manage health-insurance related affairs. They may be named, e.g. “Health Insurance Center”, and “Health Service Coordinating Center.” In addition, due to the requirements set by NHSO—such as those on primary care and the “Excellent Center” policy—several hospitals set up new service units. They include primary care units (PCUs) and tertiary-care excellent centers for cardiac, cancer and trauma patient, for instance.

Health insurance centers are key hospital responses. They function in different areas, ranging from verifying patients’ health schemes eligibility, coordinating patient referral (in and out), managing pre-authorization and utilization-review activities, coding clinical information, and processing medical information for reimbursement. In some places (e.g., Hospital #3, Hospital #7 and Hospital #8), they also work as patient complaint centers and managing patient grievance. They may help facilitate or assist patients filing claims for damages according to M.41 in the National Health Security Act. Cross-functional processes across hospital departments, such as medical record, finance, outpatient services, emergency, information technology, are said to be keys to success in adapting to rapid introductions of health care purchasing initiatives imposed under the UC scheme. As for smaller hospitals like Hospital #9, the hospital also had to move health insurance work from the policy and plan division and combined it with the medical record unit to set up the health insurance center.

The most resource-consuming work that causes a lot of administrative burden is information processing for reimbursement. Hospital #1, for example, had to double a number of coders and personnel in the Health Insurance Center. As a referral center, this hospital faced problems of differing requirements by the referrer hospitals in different regions. It used a team of 36 supporting staffs for handling the workload of 800-1000 UC outpatients per day. In 2007, more than 20 people were recruited to upgrade the center in light of subsequent changes of reimbursement rules, by the UC scheme and other schemes. Similarly, Hospital #3 hired more than 10 temporary staffs while it overhauled its computerized information system. Fortunately, this hospital successfully reduced a lot of document-based workload by its new information system. In addition, large hospitals, such as tertiary-care hospitals and university hospitals (Hospital #1, #2, #3, #4, and #8) appointed or assigned new hospital executive positions to look after the insurance affairs.

Small hospitals might have more limited resources, therefore, applying different approaches. Community hospitals, such as Hospital #9, also had to re-allocate a nurse and an assistant from its operating room to learn about diagnosis related groups (DRG), and work part-time with five staffs in the hospital’s income unit on beneficiary registry, financial settlement within the local network and on DRG claim processing—auditing patients’
discharge summaries and submitting claim information. In 2007 it acquired one coder and set up the Health Insurance Center. Later, the center integrated the Medical record department with nine more staffs which used to work separately on verification of patients’ scheme eligibility. Nevertheless, this hospital has not started any active utilization review programs yet. The use of medicine is controlled by authorization under the hospital information system.

Most hospitals are required to set up primary care units to take primary responsibility for population in their surrounding catchment areas. MOPH hospitals outside Bangkok, such as Hospital #4, #5, #7, #8, #9, form networks with local health centers, and become contracting units for primary care, or CUPs. Directors of community hospitals (Hospital #5 and #9) share the CUP steering committees. Despite the CUP network, Hospital #5—for example—still needed to expand its outpatient facility as the workload increased by 20-30 percent. A support team has been set up to manage the network, including rotating medical staffs to health centers, drug issues, claims, capital budget allocation and health promotion and disease prevention budgets. However, the zero growth policy of the government has constrained the hospital’s ability to recruit more permanent staff. It had to hire some temporary ones for itself and for working in health-center-based PCUs in the network, using its own retained earnings. This group of hospital staff now accounts for around 70 out of 210, including 10 nurses. For the hospital with 600 outpatients a day, it needs six people to work on inputting requested claim information for NHSO’s health programs, such as health promotion and disease prevention records, inpatient claim data, and drug information. Anyhow, the director claimed the hospital has benefited from closer relationship with other local providers. The change from the inclusive capitation to the exclusive one also helped reduce financial risk and administrative burden of community hospitals as the hospital no longer needed to pay referral bills.

By contrast, tertiary medical centers, like Hospital #1, #2, #3, #4, #6 and #8, establish excellent centers. In responding to extra allocation of capital budgets, these hospitals created cardiac centers, cancer centers, trauma centers, and later, neonatal intensive care centers. The centers serve not only patients in their own catchment areas, but also referred cases from other nearby provinces. However, unlike the case of health insurance centers, excellent centers may not be formal structures in many hospitals. They may merely be a formation of designated multi-disciplinary care teams, and may get new offices.

Nevertheless, it is difficult for the hospitals to accurately quantify related administrative costs associated with the restructuring since these centers serve not only UC patients, but also patients in other health insurance schemes.

3. Internal financial incentive arrangement:

Several features of the UC scheme have led the hospitals to a number of internal financial incentive arrangements. Such features of the UC include requirements on claimed data, excellent-center and disease management programs, and the need for setting up primary care networks and partnerships. The hospitals’ incentive arrangements range from performance-based payment, to internal fee schedules.
Due to requirements on claim data, such as discharge information and deadline for claim submission, some of the case-study hospitals have established certain kinds of internal pay-for-performance programs to motivate their staffs to help collect more revenue or to work more to accommodate higher service volume. For example, Hospital #8 has initiated a special performance-related incentive of 15-25 baht per record for any hospital departments to meet targets for completing and returning patient discharge information and records to the health insurance center in time (80% by 15 days), such that the hospital could submit the discharge information to the NHSO by 30 days after discharging the patients to avoid any penalty of late submission. The targets were usually met by the small hospitals’ departments like Ophthalmology and ENT, but still too difficult for larger departments, such as Internal medicine. Overall, using the incentive, the hospital can reach 87 percent performance, against the earlier 55 percent—reducing the penalty by around a million baht a year.

Some hospitals have to create internal fee schedules to pay for services provided by staffs and contracted providers, or to charge network providers in case of referral. Frequently, internal fee schedules were initiated as a result of the NHSO’s excellent center policy, in which certain parts of the payment were set for personnel compensation, such as the cardiac-center and trauma-center programs. Case-study hospitals, such as Hospital #4, and Hospital #7, stated that, although such incentives helped motivate staffs and increase their productivity, they were limited to certain groups, not all people involved in providing the services. From time to time, it created internal conflicts, and compromised other services outside the scopes of the programs. Moreover, the payments were later discontinued in many hospitals as it was discovered that the internal payment scheme might not be allowed under the government regulation. The productivity was inadvertently affected.

Thus, it is worth noting that the NHSO’s performance-based payment (P4P) may not align with hospital’s incentive structure, or lead to pay-for-performance arrangement in hospitals. Moreover, some hospitals, for instance Hospital #5, claimed that it was not beneficial as the hospital had to hire more staff to work on additional data and claim submission, in which it could sometimes consume as much as 30 percent of staff time, leaving less time for services. In addition, health centers might reduce their other services, or even requested for more staff to work on claim processing as no data meant no money. The worst part was that the P4P focus might not be high-priority health problems in the area.

Fee schedules are also set for use in provider networks, and for public-private partnership initiatives. Hospital #3, for example, charged its primary-care network clinic fee-for-service using its own fee schedules for referred outpatients and emergency cases, while inpatient-referred cases were reimbursed from the NHSO fund. Hospital #9 sets prices at 1700-2000 baht per case and pay 1,500 baht for the outsourced hemodialysis services. Such arrangement examples allowed for expansion of service capacity and enhance capability of hospital services.

4. Information system:

Investment in expanding capabilities of hospital information systems—including computerized networks—and improving internal communication seem to be among the hospitals’ critical responding strategies. They are essential for internal management as well
as for reimbursement purposes. Hospital#1 installed a new hospital information system for
the unit responsible for UC patients, including outpatient and inpatient care, as well as
administrative information. It was linked to the main hospital system, but worked
independently. Separated financial reports with respect to spending of the UC budget can be
drawn. Despite the system, the hospital still re-organized the work of its team of 40 coders
and hired additional 60 staffs, or so, for coding and claim processing. In addition, the
hospital needed to work on medical record audit and internal control in order to speed up
processes on clinical data gathering and claim data processing to meet NHSO’s one-month
deadline, avoiding reimbursement penalty. Still, there were a lot of mistakes and
incompleteness of claim data. It took around six years, or from 2001 to 2006, to bring those
problems down to an acceptable level.

Hospital #2, Hospital #4 and Hospital #6 also applied new computerized hospital
information system and used them as main tools for utilization management. The electronic
medical record systems enable the hospital management to review key performance
indicators (KPIs) on financial performance and identify areas to pay more attention for
utilization control. Hospital #2 uses the electronic system to control physicians’ privilege in
prescribing expensive drugs outside the national essential drug (ED) list. A non-ED
prescriber has to write the prescription, along with the rationale for its use, by hand to submit
for pre-approval. Similarly, Hospital #6 does so but conducts everything online, as requests
are sent to responsible hospital executives.

Hospital #3 expanded its new information system to its primary care network,
including not only transaction data, but also clinical data. Their network clinics were
required to use the system which allowed clinicians in the hospital to see what had been done
to the patient if referred to the hospital, and vice versa. The information system also allows
for proactive communication with the scheme beneficiaries, where in this hospital, customer
relationship management programs are developed.

Nevertheless, the use of computerized hospital information systems was found to
mislead the hospital management. System inability to track financial statuses correctly
created serious issues in certain hospitals. For example, Hospital #9 had problems with its
accounting practices and the hospital information systems currently in use, resulting in
incorrect assessment of its cash flow and assets. Subsequent decisions in which invested in
expanding its infrastructure, both human resources and facilities led to considerable financial
shortage.

b. Medical care provision and arrangement of specialized medical services

All sampled hospitals had to expand their services to manage increasing load of
services as a result of UC establishment. The effects of the UC scheme on hospitals vary.
So, they might use different approaches, however, including expansion of outpatient and
inpatient facilities, separation of outpatient departments, and public-private partnership
initiatives. Cost control initiatives are also used to limit utilization of resources in medical
care, including reforming hospital drug formularies and utilization reviews. Among these,
some particularly interesting experiences are discovered.
Service expansion

In light of reduction of a financial barrier which has allowed greater access to UC patients, almost all hospitals needed to expand their capacities. For example, being a community hospital, Hospital #9 has faced increasing workload from around 200 visits per day to 700-800 visits per day. The inpatient bed occupancy sometimes reached 170 percent, while the case-mix indices went up from around 0.6 to 0.85. It had to develop and has taken responsibility for 19 primary care units (PCU) in its catchment area. The provider team initiated a system to transfer chronic patients—diabetes and hypertension—to the PCUs where the hospital sent physicians to visit once a week, reducing chronic-care load from 200 patients a day to 60-70 visits per day. To cope with the increased load, the hospital also expanded its workforce since 2001, increasing a number of physicians from four general practitioners to 21 in total, of which 11 were specialists. The numbers of dentists, pharmacists, nurses and technicians increased from one to seven, from two to 16, from 20+ to 140+, and from one to seven, respectively. Many of them have been paid by the hospital itself. In addition, it expanded the number of operating beds from 60 to 120, including a to-be-opened intensive care unit. One more inpatient building for another 114 beds is under construction. Such the transformation from the simple community hospital to a general hospital has created serious management problems, particularly competencies of its clinical staffs, as well as of management teams. In early 2011, this once “rich” hospital reported a financial loss and had to file a plan for external financial support.

Besides, hospitals extend their services vertically. Hospital #5, for instance, has initiated integrated health care programs and home health care, including rehabilitative services, for stroke patients, the disable and the elderly. The hospital also provided in-house training for health center staffs to take care of diabetic and hypertensive patients, using clinical practice guidelines to determine when patients should be referred to the hospital.

Service separation

Separation of outpatient departments to be primary care units (PCUs) to serve local registered UC patients are common practices in many hospitals, such as Hospital #3, #4, #5, and #6. UC patients in the catchment area where a hospital is located need to go to a hospital-based PCU clinic instead of coming directly to the hospital’s outpatient department and specialized clinics. They generally are in different buildings. The PCU clinic becomes a gatekeeper, by which complicated patients will be subsequently “referred” to the hospital’s specialists working in the main outpatient facility. Hospital #1, in particular, has built another “Hospital-in-Hospital,” having separated facilities, medical staffs, and financial management. Separated from the tertiary-care mission of the main university hospital, the new hospital takes responsibility of being a community hospital. UC patients have to go to this facility, and only being referred to the main facility if needed. In the beginning, the utilization rate was rather low at 0.8 per person per year for 60,000 registered people. Recently, the registered population went up to 90,000 while the utilization rate was up to 1 per person per year. Financially, this initiative is a successful gatekeeper as it has been profitable for both outpatient and inpatient services, while the main hospital inpatient service is at loss. The outpatient unit cost is around 200 baht whereas the cost goes up to 800 baht if a patient is referred. However, the internal referral rate now reaches 50 percent, rising from 10 percent in early years of UC.
Public-private partnership

Public-Private Partnerships have been initiated in some hospitals. Hospital #3 set its primary care network, having private clinics as major partners. Although the partnership help reduce the hospital outpatient workload dramatically, the hospital had to do quality assurance on its clinic network. There was an annual site visit, using NHSO QA form. Network providers are required to attend routine meetings and update training. Among many challenges, medical personnel of network clinics changed quite often, in which the situation demand for continuous relationship management activities. Another example is Hospital #9, which is a community hospital. It engages in public-private partnership in hemodialysis services in order to expand its capability to provide more specialized medical services, and accommodate patients whom are referred back from tertiary-care hospitals.

Public-private partnership also allows patient access to secondary and tertiary-care in private hospitals. In the northern area of Bangkok, two private hospitals are included into the network to expand access to secondary care. Hospital #3 has to coordinate care in the area and become their referral center for tertiary-care.

Nevertheless, the use of public-private mix under the public health scheme should still be considered with care. Information given by one case-study hospital indicates that a financial incentive has strong influence on the private sector. The risk of abuse, which results in over-utilization of resources, may be high in conditions that require a lot of medical discretion. In case of the NHSO’s cataract program, for example, a provider in this province gets paid 7,000 baht per in-region case and 9,000 baht per case from outside the region. Within a year the number of cataract surgery went up to 9,000+ cases for two ophthalmologists in the private sector versus 2,000+ cases for six ophthalmologists in a tertiary-care public hospital.

Control of medical cost

After UC implementation, access to medicine has been controlled with more rigorous processes. It is very common to find hospitals limit number of drug items in their hospital formularies, foster uses of generic drugs, and apply some kinds of utilization review programs. MOPH, once, set a rule to limit number of drug items by the level of its hospitals. University hospitals, for example Hospital#1 and Hospital #6, eliminated duplicate drug items from their pharmacies. Generic drugs replaced original ones where possible. Some hospitals, such as Hospital #2, have authorized hospital pharmacies to replace trade-named prescriptions of physicians with generic ones.

Almost all hospitals monitor drug utilization, at least retrospectively. Some work on concurrent reviews, such as Hospital #4. It is also very widespread to see some kinds of pre-authorization for non-ED drugs, implemented in hospitals. They may include limiting prescription privilege to designated specialists (e.g. Hospital#1), pre-approval by hospital administrators or medical committees (e.g. Hospital #6), and computerized prescription control (e.g. Hospital #2). Nevertheless, the hospital formulary systems may become more relaxed recently, having higher proportion of items outside the national ED list. Hospital #8 expanded its hospital formulary from 750 items to 900 items in 2007, which was partly claimed to lead to higher drug expenses. Judging by drug expenses per visit, the UC groups were still far behind the fee-for-service CSMBS patients, nonetheless. (Figure 4) Hospital
which used to control drug authorization by specialists, has increased the drug availability and allowed more access to general practitioners. It is said to be the influence of the reimbursement method introduced by the Civil Servant Medical Benefit Scheme in the year 2007-2008.

**Figure 4** Drug expenses and utilization statistics for UC patient in Hospital #8

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total hospital’s drug expenses (Mil. Baht)</td>
<td>292</td>
<td>360</td>
<td>434</td>
<td>559</td>
<td>642</td>
<td>759</td>
</tr>
<tr>
<td>Drug expenses in the national essential drug list</td>
<td>73.9</td>
<td>71</td>
<td>70</td>
<td>61.6</td>
<td>58.4</td>
<td>56.9</td>
</tr>
<tr>
<td>UC patient visits (x1000)</td>
<td>178.6</td>
<td>180.0</td>
<td>186.8</td>
<td>189.9</td>
<td>193.9</td>
<td>203.7</td>
</tr>
<tr>
<td>Drug expense per visit for UC patients (baht)</td>
<td>398</td>
<td>493</td>
<td>666</td>
<td>853</td>
<td>896</td>
<td>1023</td>
</tr>
<tr>
<td>Drug expense per visit for CSMBS patients (baht)</td>
<td>1,119</td>
<td>1,398</td>
<td>1,818</td>
<td>2,409</td>
<td>2,992</td>
<td>3,367</td>
</tr>
</tbody>
</table>

Hospitals generally welcome disease management programs, however. Introduction of disease management programs, such as HIV, TB, and asthma, helps guide hospitals on how to organize and provide care with good quality for patients. The use of medicine is generally followed acceptable clinical practice guidelines. Drug costs associated with the guidelines are usually factored into the payment schedules. Nevertheless, some programs may not be as beneficial, including the screening programs for diabetes and hypertension. Some requirements might incur cost and burdens that are not justify benefits, such as annual repetition, or might not have enough support funding, such as HbA1C for diabetic patients.

Although it is said that health promotion and disease prevention activities (PP) help reduce health care cost, it is worth noting that the capitation payment by itself has failed to promote PP. Interviewees in several hospitals stated that the service burden in curative work and the hospitals’ financial troubles did not allow them to engage very much in longer-term issues, unless such PP programs came with extra payments.

In addition, the area-based patient entitlement to registering at a hospital, along with capitation payment, has created adverse selection in risk pools of tertiary-care hospitals. This contributes significantly to higher average cost of care for this group of hospitals. Hospital #2, for example, reported high-risk patients moving their name to houses in the hospital’s catchment area so as to access the hospital. Recently, this hospital and many non-MOPH tertiary-care hospitals had stopped accepting new UC patients under their primary-care contract although they still welcome for referred UC patients.
c. Patient referral system

Under the UC scheme, patient referral has been more systematized. Hospitals are required to participate in referral networks, either at the provincial level, the regional level, or the national level, depending on their roles. Community hospitals, for example Hospital #5 and Hospital #9, become CUP managers, running district referral networks. Provincial general hospitals, like Hospital #7, take responsibility for referrals from nearby district community hospitals. Tertiary-care hospitals, such as Hospital #4 and Hospital #8, become regional hubs. University hospitals are tips of the referral chains of nearby regions. Even previously stand-alone military tertiary-care hospitals, like Hospital #3, form network of health care with local providers for their catchment areas.

Nevertheless, financial accountability of the referring provider leads to complexity in patient care. Many sample hospitals, particularly tertiary-care ones (Hospital #1, #2, #4) complained much on unpractical authorization in patient-referral forms, which deterred patients from getting good or complete care, such as specifying that a patient is referred for only a particular investigation or treatment, but not allowed for coincidental findings, or management of other patient conditions during visits to tertiary-care hospitals. The referred hospital might not be able to reimburse the cost of such care. The patient might lose opportunities for prompt management, or he/she had to return to the contracted primary or secondary care provider to get new referral permission.

Financial incentives strongly influence patient referral. While the switch from the inclusive capitation to exclusive capitation has helped transferring financial risk from referring community hospitals, the reimbursement rates for outpatient referral set by MOPH are also in favor of smaller community hospitals. They put large hospitals at financial risk, however. According to the interviews in the tertiary-care and university hospitals, most of the DRG-based global budget payments for inpatient referrals may not be enough to recover all medical care costs in these hospitals. At the district level, mentioned by Hospital #9, the CUP board led by the hospital generally discussed financial issues rather than health outcomes and quality of care. This was attributed to the prepaid nature of the capitation payment. The different lines of command among providers in the network also complicated discussions. Successes depended very much on local cultures and personal relationships among leaders of local providers.

Conclusions and recommendations

Many features of the implementation of the universal coverage (UC) scheme have affected public hospitals in Thailand. The major ones, which are parts of the way the UC scheme purchases health care, include the use of close-ended payment mechanisms, the focus on primary care, capital financing and capital budget allocation, selective contracting, and performance-based payments. However, the most influence factor is the use of capitation and the DRG-based global budget payments, and the system management nature of the National Health Security Office (NHSO) in introducing and managing its purchasing initiatives.
Based on the UC-related literature and the findings from the case-study hospitals, key hospital responses to the main features of UC implementation in Thailand, as well as their purposes and adverse effects, are summarized in Figure 5. Recommendations for the future of the UC scheme, as well as for other transitional and developing countries planning to implement ones, include the followings.

1) Any national health care purchaser should take some time to understand health care providers under the scheme. The success of a purchaser depends very much on how effective health care providers are in delivering care, and how efficient they are in managing resources. As providers are parts of the health system, any costs incurred with them in administering health programs, including those related to claim processing and reimbursement, are also costs of the system. Mutual understanding and partnership are crucial elements. Provider participation in planning health care programs may help ensure successful implementation of any national health insurance scheme.

2) Change management of the scheme is critical. Any purchasing interventions, particularly financial components, may have benefits outweighing risks in theory. But, the way they are implemented may lead to a lot of constraints, putting enormous pressure on hospitals. Some of their responses may compromise patient care and services. Lag time and slack resources may be essential for them in managing key changes, including improvement of information systems and human resources development. Policy makers and system administrators should be aware that hospitals are only intermediaries—distributors of health care. The ultimate party to receive any benefits or any adverse effects of any health scheme intervention is patients.

3) Alignment between system incentives and organizational incentives should be carefully considered in purchasing health care. Any policy, regulation, or a payment mechanism may not achieve expected outcome because its influence is not transferred down to where health care is actually produced—transaction between a physician and a patient. Some may look very effective in the beginning, but become less effective later, such as the case of Thai ED policy. Purchasing arrangement should also be fine-tuned from time to time, as well as should be able to accommodate variation in health problems across different areas to ensure sustainability.

4) In purchasing health care under a universal coverage scheme, combination of purchasing programs and initiatives should be sought out. Each purchasing initiative, or its component, may have differing influences on providers. Interactions with other health schemes and payment systems need to be taken into account. There may be no single solution to a complex problem.
<table>
<thead>
<tr>
<th>UC Features</th>
<th>Impacts on hospitals</th>
<th>Key hospital responses</th>
<th>Purposes /Intended Results</th>
<th>Adverse effects (if any)</th>
</tr>
</thead>
</table>
| Close-ended payment using capitation and DRG-based payment with global budget | - Limit resources for patient care, putting pressure for cost containment  
- Put more requirements for claim data, including deadline and penalty for late claim submission | Limit hospital drug formulary; increase use of generic drugs; apply pre-authorization for high-cost medicine, or non-ED drugs | Rationalize drug use; Reduce use of non-ED drugs; Contain medical care cost | Reduce access to new drug technology; Restrict choices of treatment; Raise inequity issue with other schemes |
| | Change patient care pattern, e.g. patient referral | Contain medical care cost | Delay patient referral; Affect patient outcome +/- |
| | Set up separate patient care facilities, including “a community hospital” within a tertiary-care hospital | Contain medical care cost; Build accountability in internal management | Not applicable |
| | Establish “Health Insurance Center”; Appoint a new hospital executive position responsible for health-insurance related activities | Provide counter service; Coordinate care; Facilitate patient complaints; Process claim and reimbursement | Increase administrative burden (not funded by UC or government budget) |
| | Expand ICD-coding team and support staff on data and claim processing | Improve claim processing and maximize reimbursement amount | Increase administrative burden (not funded by UC or government budget) |
| | Special incentives for medical staff to review and complete patient records | Complete medical records in time and improve record quality | Not applicable |
| | Improve computerized network and hospital information systems | Facilitate claim processing; Control prescription privilege | Need hospital investment (not funded by UC) |
| Policy in favor of primary care | - Take responsibility of people in a catchment area  
- Strengthen primary care | Expand hospital capacities – outpatient and inpatient | Match service capacity with workload | Compromise hospital financial sustainability |
<p>| | Set up and facilitate primary care network of providers, including health centers, or nearby private clinics | Reduce hospital-based primary care workload; Improve continuity of care and access for patients | Need hospital investment; Increase number of technical staff |
| | Re-train specialists in family medicine | Increase number of family physicians for primary care | Reduce productivity; Raise internal conflicts |</p>
<table>
<thead>
<tr>
<th>UC Features</th>
<th>Impacts on hospitals</th>
<th>Key hospital responses</th>
<th>Purposes /Intended Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital financing</td>
<td>- Additional capital fund</td>
<td>Set up excellent centers and multi-disciplinary care team; purchase new equipment and expand support facilities</td>
<td>Improve tertiary-care and specialized services</td>
</tr>
<tr>
<td>and Policy on excellent center</td>
<td>- Requirements to set referral systems</td>
<td></td>
<td>Create internal conflict due to differential incentives and support among centers</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Selective contracting</td>
<td>- Additional resources from separate payment schemes</td>
<td>Set up patient care teams or coordinate care to meet requirements</td>
<td>Some are business as usual.</td>
</tr>
<tr>
<td></td>
<td>- Extra work in claim processing</td>
<td>Arrange working groups for claim processing; Need over-time work (sometimes at night)</td>
<td>Compromise routine work (with no extra payment)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Increase administrative burden; Increase data inaccuracy due to duplication and no audit</td>
</tr>
<tr>
<td>Quality-based purchasing</td>
<td>- Additional payment for achieving performance targets</td>
<td>Put more efforts in activities with performance bonus; Collect data on required key performance indicators</td>
<td>Gain additional performance-based reimbursement</td>
</tr>
<tr>
<td></td>
<td>- Budget support for quality improvement under the hospital accreditation program</td>
<td>Engage in hospital accreditation and quality improvement activities</td>
<td>Compromise routine work (with no extra payment)</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Get accredited status; may receive higher amount of support</td>
<td></td>
</tr>
</tbody>
</table>

Adverse effects (if any)

*Not applicable*
References


