AUDIT SYSTEM

FOR THE UNIVERSAL COVERAGE SCHEME (UCS) IN THAILAND

NHSO
National Health Security Office

NHSO
National Health Security Office

AUDIT SYSTEM

FOR THE UNIVERSAL COVERAGE SCHEME (UCS) IN THAILAND

TABLE OF CONTENTS

THREE DECADES

OF DEVELOPMENT OF THAI UNIVERSAL HEALTH COVERAGE SCHEME: THE CONCEPT OF HEALTH EQUITY

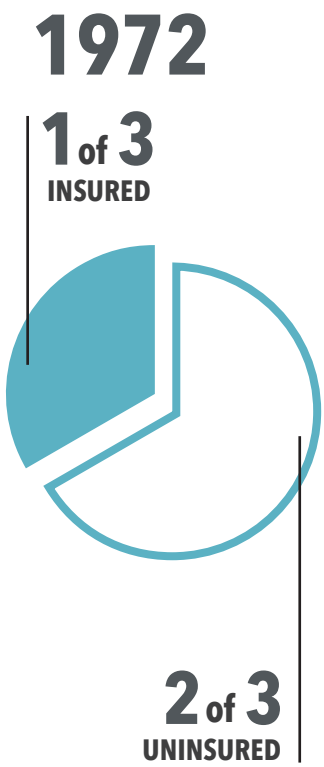
CONTINUOUS DEVELOPMENT BUILT ON A STRONG FOUNDATION

No matter where they are or what station in life they hold, all Thais can be assured that they will be cared for in times of illness or injury. This health security has a long history of evolution for more than three decades and emerged as the National Health Security Act of 2002. However, looking back during the past 30 years, only one-third of Thais was covered by some form of health insurance. The remaining two-thirds had to pay out-of-pocket for health services. For the lower-income households, just one catastrophic illness or injury could force them into bankruptcy.

The first health insurance system began around 1972 with the creation of a Worker Compensation Scheme (WCS). The fund covered the costs of care for workers who had work-related injury or illness. A short-coming of this fund was that it only applied to worksites with at least 20 employees and, initially, the fund only covered worksites in Bangkok. However, by 1988, the fund was expanded to cover every province. After the Compensation Fund Act was passed in 1994, the fund was administered by the Office of the Compensation Fund under the Social Security Office of the Ministry of Labor. Another fund for formal sector employees was the Social Security Act which was passed in 1990. The Social Security Scheme

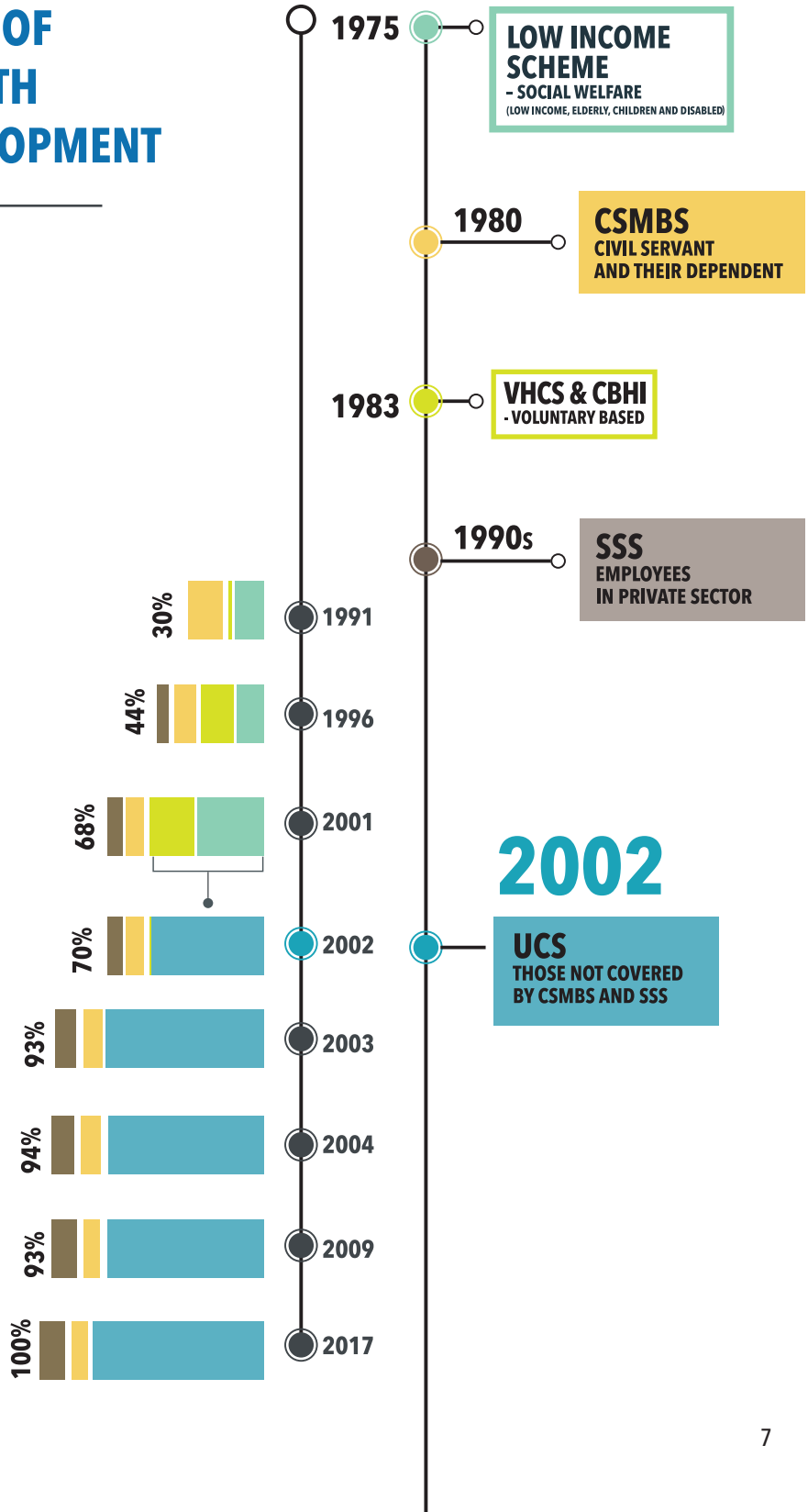
(SSS) provided compensation for those Thais who incurred injury, illness, or death, regardless of whether the condition was work-related or not. Social security provided support for delivery, child care subsidy, old age, and unemployment. By 2002, social security was also provided through participating worksites of any size. For government civil servants, the health insurance was managed separately. Initially, each government agency managed their health insurance within each ministry which set aside a portion of its regular budget for this purpose. In 1980, this system was consolidated under the Royal Decree on the Disbursement of Civil Servants Medical Benefit Scheme (CSMBS) and administered under the Comptroller-General's Department of the Ministry of Finance.

Thus, over time, Thais who were working in the formal sector had health insurance coverage of some form or another. However, persons outside the formal employment system, including children and the elderly, and did not have a relative who was a government civil servant, did not have health insurance (unless they bought it in the private sector). Accordingly, the Ministry of Public Health (MOPH) began to address this gap in coverage in 1975 through a project entitled "Medical Welfare Scheme." This project was set up to subsidize medical care for the indigent patients who did not have welfare cards. However, offering this benefit to a patient depended on the discretion of the attending health staff. By 1994, a 'medical welfare card' was issued to those deemed qualified to receive subsidized medical care, including the poor, children under 12 years, the elderly, the disabled, veterans and their families, and Buddhist monks/novices. With the 2002 National Health Security Act, the Universal Coverage Scheme (UC scheme) was successfully implemented to cover all Thais throughout the nation who were not covered by CSMBS and SSS. This meant that Thailand has achieved universal health coverage (UHC) since 2002.



THREE DECADES OF NATIONAL HEALTH SECURITY DEVELOPMENT

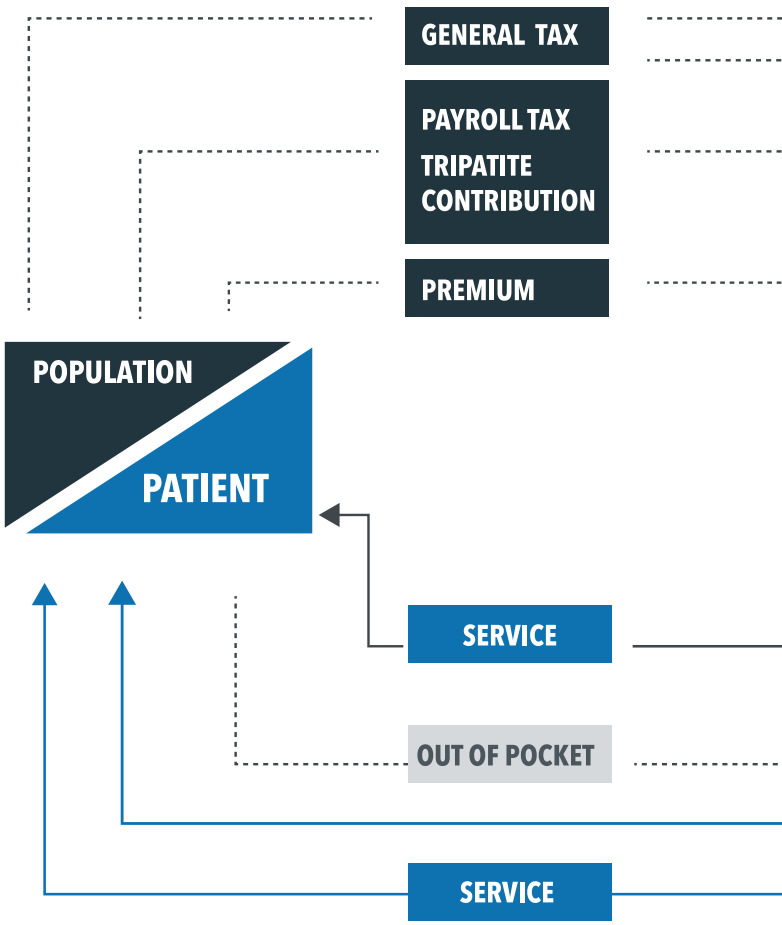
Figure 1



Thus, it can be seen that the development of a national health insurance scheme in Thailand was an uneven and incremental process which gradually improved and expanded coverage so that a minimum essential need was met. Understandably, the initial emphasis of subsidized coverage was for those least able to afford out-of-pocket medical expenses or private medical insurance. Over time, the coverage was broadened to include more and more segments of the population. In 1975, 30% of Thais had some form of health insurance and, by 1991, this had increased to 70%. At present, all Thais are covered (see Figure 1). The National Health Security Office (NHSO) program covered about half of the Thai population (48.8% as of 2019), followed by employer-based social security (which covered 14.5% as of 2019). The government CSMBS covered 4.5 million civil servants and their family members.

The different health insurance schemes have different management systems, sources of funding and disbursement procedures (see Figure 2). The CSMBS is totally funded by the central budget, managed by the Comptroller-General's Department. The CSMBS applies two provider payment methods which are actual cost incurred for out-patient care (fee-for-services) and diagnostic-related grouping (DRG) payments for in-patient care.

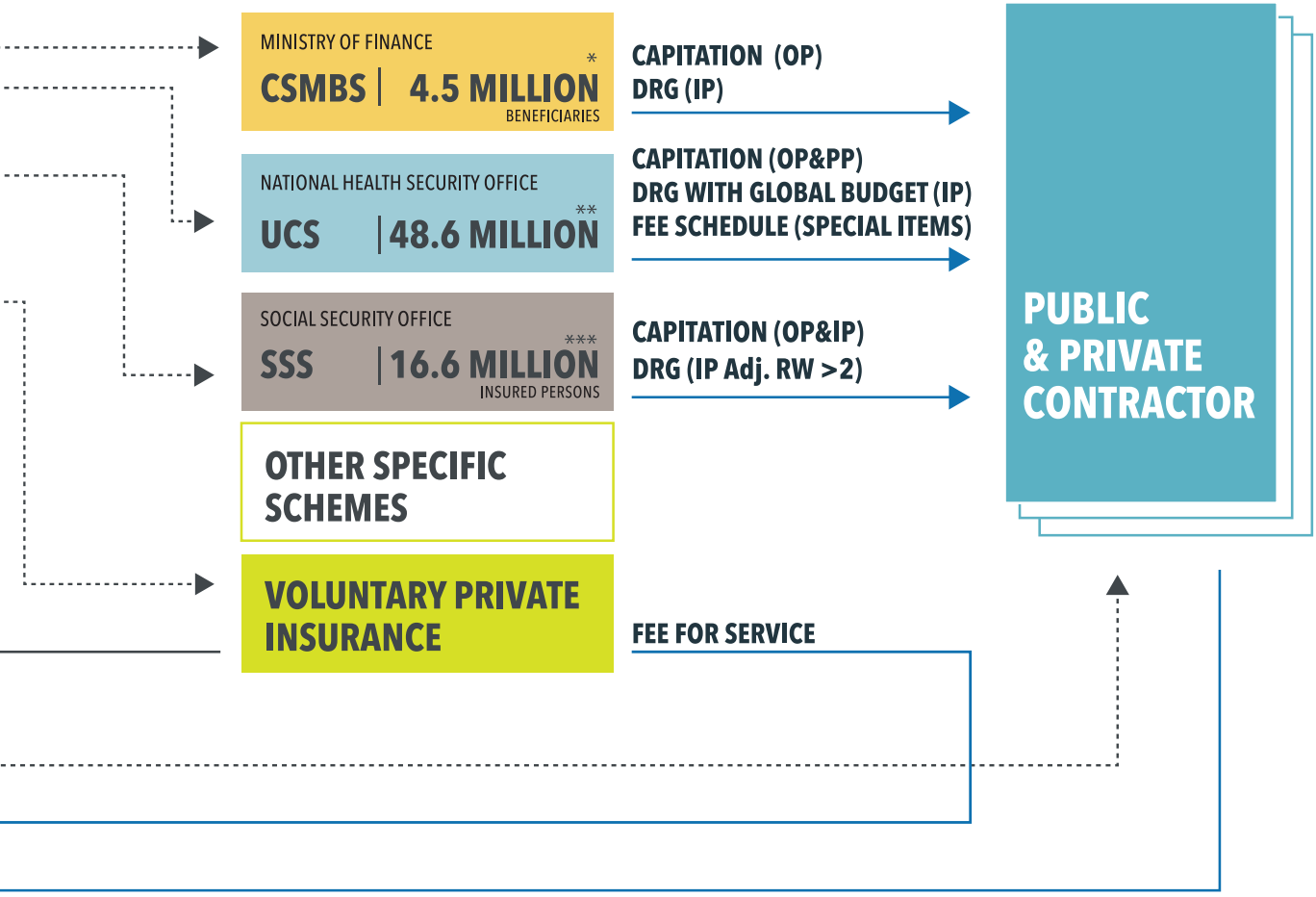
The SSS is a tri-partite contribution from the employer, the employee, and the government. The SSS applied a capitation contract model as a provider payment method to health facilities who registered as a main contractor of the SSS. Similar to CSMBS, the UC scheme is totally funded by the government budget through the management of the NHSO. The UC scheme's budget comes from a per capita calculation based on unit cost of service and use rate of the UC scheme members. The UC scheme applies mixed provider payment methods such as capitation payment for out-patient services, a DRG system with global budget for in-patient services, and fixed fee schedule for special treatment or interventions.



To make universal health coverage successful requires not only financial protection, but also continuous development of the health system to ensure that people can get equitable access and use of quality health services when needed. This includes having facilities in the vicinity of every community and also having an adequate number of competent health personnel working in the rural areas. Thus, it can be said that the Thai universal health care approach takes a comprehensive view of the entire health system, from financial protection to health systems development to provide a more secure foundation for health of the population.

MANAGEMENT OF THE NATIONAL HEALTH SECURITY SYSTEM OF THAILAND

Figure 2



Source: *National Statistical Office (2019); **National Health Security Office (2019) and ***Social Security Office (2019)

AUDIT SYSTEMS

WHY DO WE NEED AN AUDIT SYSTEM?

The NHSO manages the UC scheme on behalf of all members. Thus, in order to ensure that the UC scheme is being properly and efficiently managed, it is important to perform occasional audits of its operations and performance. The word "audit" comes from the Latin word *audītus*, meaning the sense or act of hearing. Audits are thousands of years old but, today, most audits are considered to be inspections of financial records and accounts to ensure accuracy and detect mistakes or falsehoods. In general, a standard audit is a systematic, independent review of documents and related information to obtain objectively verifiably results in order to judge whether operations are in accordance with standards or stated policy (ISO 19011:2011–Guidelines for auditing management systems).

The principal aim of the audit of Thai clinical practices is to provide assurance that the UC scheme managed by the NHSO is sound, viable, and efficient in the provision of quality services. This is a form of guarantee that the Fund is being used by participating health facilities as intended, that services are appropriate, and costs of care and treatment conform to national pricing guidelines. In addition, the purpose of the audit is to support improvements in quality of treatment and relevant data systems since the quality of the medical records is a reflection of the quality of care and treatment. The audit of the medical records will reference professional standards of the different

AUDITUS

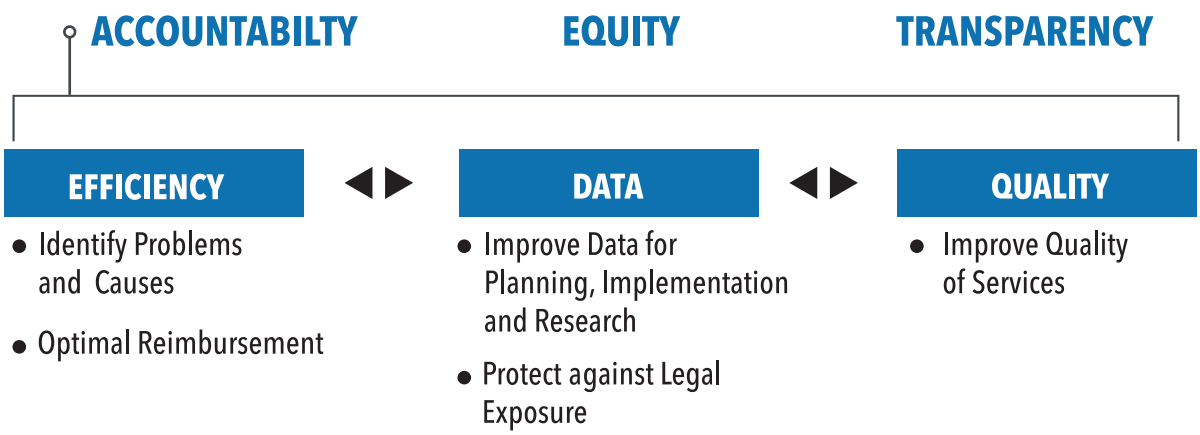
The Sense or Act of Hearing

agencies. These data can be used to improve quality of treatment in the future. It is also important that the codes for treatment and services in the medical records at the service facilities are entered as accurately as possible. It is important to learn from mistakes and continually strive to maximize performance.

The aim of the audit of medical records is not to minimize disbursements from the Fund or to be used as a mechanism to order repayments for over-expenditures by service facilities in order to maximize the balance of resources in the Fund. Instead, the audit is done to affirm that the Fund's resources are being used as efficiently as possible. Efficiency can be expressed as optimal quality of life for the Thai individual. Thus, the NHSO has a policy of commissioning periodic audits of the funds that are transferred to participating health service facilities. If the audit finds that some facilities are receiving less than they should for a given service, then the NHSO will increase reimbursements to those facilities. Conversely, if some service facilities are found to be receiving reimbursements in excess of what they should, then the NHSO will request a return of the balance of funds.

The audit of medical records produces data which can be used to improve services across many dimensions. For example, the information can be used to improve the disbursement system of payments to service outlets so that they most closely match the actual cost incurred. The audit can help refine the calculation of the central reference price of a clinical service so that it conforms to current economic conditions. The audit findings help to inform budget planning for the years ahead. The audit of medical records can also expose problems in treatment practices that need to be corrected. Finally, the audit is a joint learning process involving all the relevant sectors, from the service facilities, the NHSO, related organizations, and professional associations in order to the improve the Thai health security system and ensure that it is sustainable.

WHY WE NEED AUDITING ?



HISTORY AND EVOLUTION

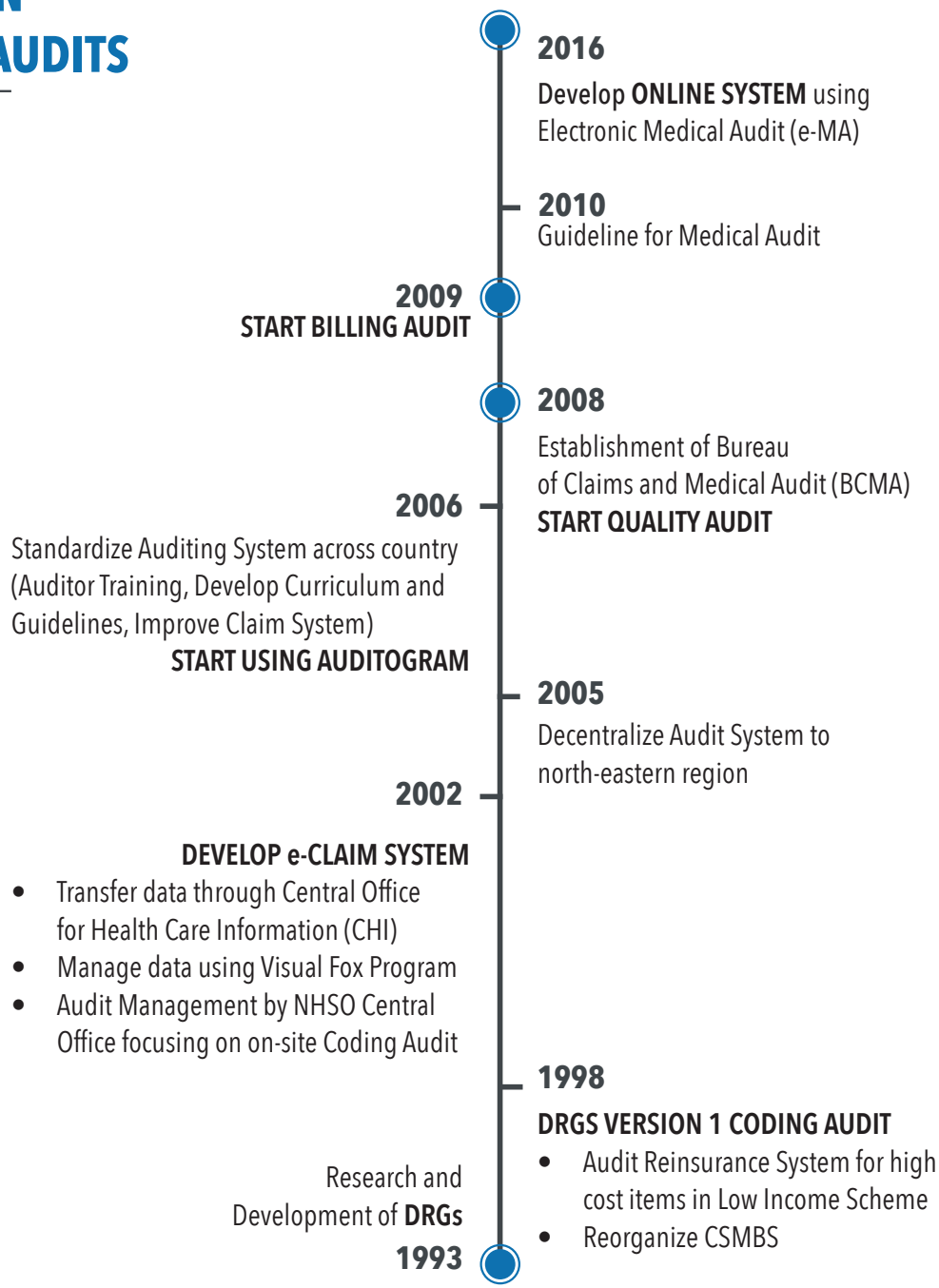
OF IMPLEMENTATION OF THE AUDITS COMMISSIONED BY THE NHSO

The auditing system of the NHSO has steadily improved over time, and is periodically re-aligned to match the changing mechanisms of disbursement. In 2006, the audits began as Coding Audits or Summary Audits of disease coding. The second system of audits consists of the Quality Audits, starting in 2008, which assessed services in comparison with standard references from Royal Colleges with input from specialists. The audits focused on groups of diseases which accounted for increased disbursements and/or a high level of expenditure. The audits were conducted to monitor quality of the patient services in each audit year, and a different area was selected for inspection from year to year. In 2010, there was the addition of the Medical Record Audit to improve quality of data of the patient records. At the time, there was no system to request repatriation of funds in cases of over-claims, and the audits were conducted in accordance with Medical Record Audit Guidelines.

In addition to the Coding and Quality Audits, the NHSO implements a Billing Audit, in part, to reduce financial risk of service facilities, and to ensure correctness of disbursements within the system. A pilot test of the Billing Audits was conducted in 2009 by inspecting reimbursements for medical supplies/equipment since these expenditures are outside the per capita payments to contracting hospitals. For example, in 2012, the Billing Audit detected an unusually large request for reimbursement for purchase of hearing aids. Further, the requests came from facilities that would not seem to have the capacity for such a large amount of devices. The auditors visited some of these facilities to check the medical records and disbursement history. After that, the criteria for reimbursing hearing aid purchases were tightened, as per the NHSO Announcement No. 2/2014*: "Criteria, methods, and rate of expenditure for rehabilitative services and hearing aid devices for the hearing impaired."* This had the effect of improving control of this part of the system. In 2014, the Billing Audit inspected the expensive procedure of inserting stents in vital arteries. The audit found that there were errors in the type of equipment being procured, or that items were being re-used and then classified as new procurements. In 2015, an audit detected an unusually large procurement of specialized footwear for diabetics. Even though the unit cost of the shoes was not high, when procured in large volume the cost could be significant. In addition, the audit found that the material used for the shoes was sub-standard. Thus, meetings were held with the supplier to reach a mutual understanding. Another focus of the audits was the interprovincial expenditures in cases of accidents or emergencies. These expenditures were affected by a new policy of separate budgeting. The audit found that there was irregular procurement and overly frequent reimbursement for ARV drugs (to treat HIV). In 2017, the audit found that knee replacement surgery was being done in ways that did not conform to standards provided by the professional association.

HISTORY AND EVOLUTION OF NHSO AUDITS

Figure 3



AUDIT SYSTEM OF THE NHSO

THE MEDICAL AUDIT

has the following key components:

1. STRUCTURE OR INPUT

This refers to the audit of hospital resources, including hospital beds, operating rooms, medical equipment, personnel, and the data recording system for processing reimbursements. This audit is usually conducted before a hospital has formally joined the system. The audit looks at what level of quality is required by a hospital at different levels. It also assesses whether the hospital is adequately equipped to provide a treatment, for example, the capacity for heart surgery.

2. PROCESS

This refers to a review of the process of care, the steps taken from the initial in-take form, diagnosis of the condition, special tests performed, treatment (medicine, surgery) follow-up of progress, treatment outcomes, rehabilitation and on-going monitoring. The audit can occur before services are given (pre-authorization), after services, before reimbursement (pre-reimbursement), and after reimbursing the cost of services (post-reimbursement).

3. OUTCOME

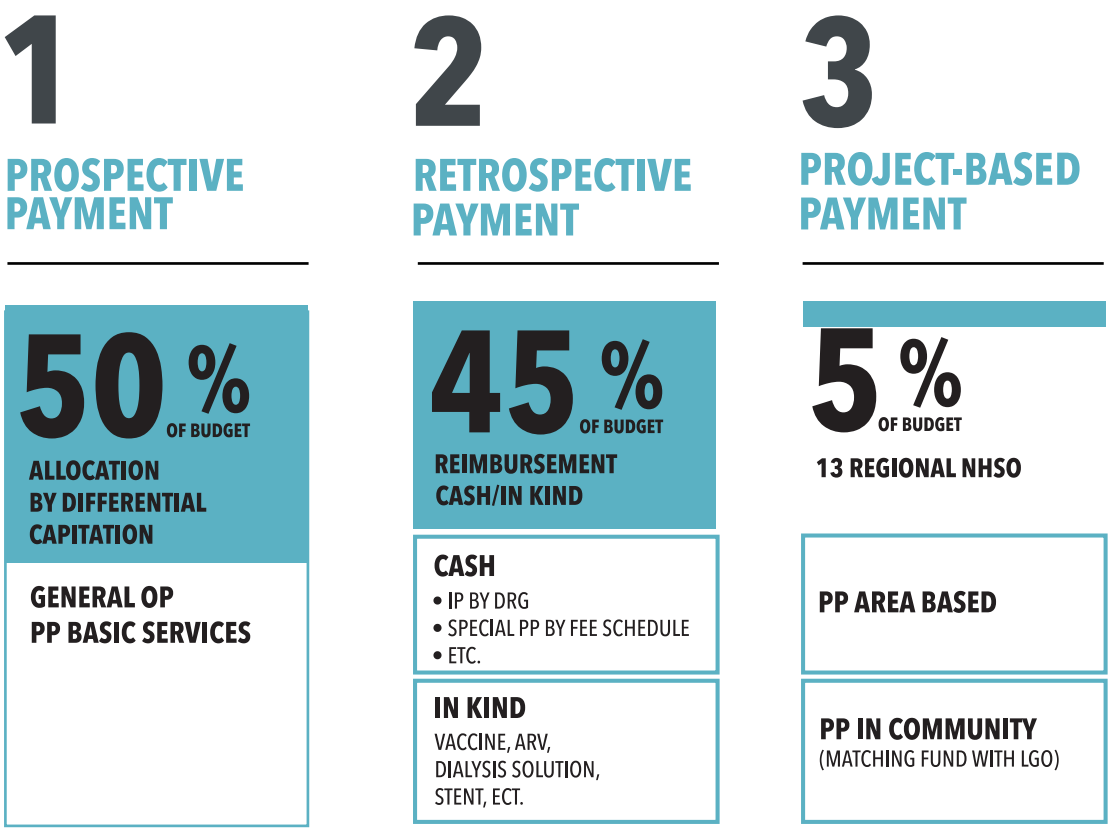
This refers to outcomes of services for related persons, such as the patients themselves, relatives, and the community. It is also conducted against professional standards of the health services, including legal and financial dimensions. This is usually conducted as a retrospective audit via data that have already been logged into the hospital database.

UNDERSTANDING THE FINANCIAL MANAGEMENT SYSTEM OF THE NHSO

In order to fully understand the medical audit systems, it is important to understand the financial management system of the NHSO which is a rather complex system of payment and reimbursement procedures and audit systems. The NHSO mainly administers payment methods in three ways: prospective payment, retrospective payment, and project-based payment (Figure 4).

METHODS OF HEALTH SERVICES PAYMENTS OF THE NHSO

Figure 4



REMARKS

OP = OUTPATIENT SERVICE
IP = INPATIENT SERVICE
PP = HEALTH PROMOTION AND HEALTH PREVENTION SERVICES
DRG = DIAGNOSIS RELATED GROUP
ARV = ANTI-RETROVIRAL DRUG
NHSO = NATIONAL HEALTH SECURITY OFFICE
LGO = LOCAL GOVERNMENT ORGANIZATION

1 PROSPECTIVE PAYMENT

Prospective payment refers to capitation payments to health facilities based on the number of beneficiaries registered with that facility. Capitation rates are age-adjusted to recognize different service utilization patterns of different age groups. For example, the elderly group uses out-patient services more often than the working-age group. Thus, the amount of payment is weighted by the proportion of elderly in the registered population. NHSO spends around half of the total universal coverage scheme (UCS) budget for prospective payment for general out-patient care, health promotion, and disease prevention services.

2 RETROSPECTIVE PAYMENT

Retrospective payment is reimbursements of the services that health facilities have provided to the UCS beneficiaries. The payment can be made in cash or in-kind (e.g., in the form of medicines or medical supplies). For example, NHSO pays in cash for general in-patient care by DRGs, and provides ARV when health facilities are reimbursed as a part of HIV service.

3 PROJECT-BASED PAYMENT

Project-based payment refers to block-grant or installment payments to health facilities, local government, or Civil Society organizations (CSOs) for some health programs aimed to address area-specific health challenges. These funds are managed by the 13 NHSO regional offices which include area-based health promotion and disease prevention services (PP area based), and community-based health promotion and disease prevention services (PP in community) for which local government agencies are required to contribute to based on specified contribution rates.

Capitation payments (accounting for around 50% of all UCS costs) are a main mechanism to ensure that all expenditures are within a finite UCS budget. However, capitation payment may cause under-provision of necessary services as health facilities are paid in advance based on population size irrespective of the services provided. The NHSO has tried to overcome this shortfall by introducing some other payments such as fee schedule and pay-for-performance based on outcomes and quality of additional services. This is to ensure that all UCS members can access the service they need.

Audit systems are also different for different payment methods. For prospective payment using capitation, there is no audit system. For retrospective payments, there are two systems of auditing. For DRGs with global budget, the audit system is the Coding Audit, while for fee schedule and the point system under global budget payments, the audit system is the Billing Audit. However, all types of payments, including capitation, are subject to a Quality Audit and Medical Records Audit. Table 1 summarizes key payment methods and audit systems.

KEY PAYMENT METHODS CATEGORIZED BY TYPES OF SERVICES AND AUDIT SYSTEMS

Table 1

SERVICE	PAYMENT	AUDIT SYSTEM	INCENTIVE	AUDIT SYSTEM
OP	**DIFFERENTIAL CAPITATION**	• QUALITY AUDIT • MEDICAL RECORD AUDIT	• FEE SCHEDULE (ADD-ON HIGH COST AND INSTRUMENT) • POINT SYSTEM UNDER GLOBAL BUDGET (ACUTE DISEASE OR EMERGENCY)	• BILLING AUDIT • QUALITY AUDIT • MEDICAL RECORD AUDIT
PP	**DIFFERENTIAL CAPITATION**	• QUALITY AUDIT • MEDICAL RECORD AUDIT	• PAY FOR PERFORMANCE (QUALITY AND OUTCOME FRAMEWORK; QOF)	• QUALITY AUDIT • MEDICAL RECORD AUDIT
IP	**DIAGNOSIS RELATED GROUPS (DRGS) SYSTEM WITH GLOBAL BUDGET USING RELATIVE WEIGHT POINT**	• CODING AUDIT • QUALITY AUDIT • MEDICAL RECORD AUDIT	• FEE SCHEDULE (ADD ON INSTRUMENT AND HEMODIALYSIS) • DISEASE MANAGEMENT INFORMATION SYSTEM (DMIS)	• BILLING AUDIT • QUALITY AUDIT • MEDICAL RECORD AUDIT

THERE ARE FOUR TYPES OF AUDIT

1. CODING AUDIT

As DRG is applied as a payment method for in-patient services, a coding audit is needed. Thailand uses the 10th version of the International Classification of Disease (ICD-10) for coding of diagnoses and services provided for in-patients and the 9th International Classification of Disease (ICD-9) for coding surgical procedures. The diagnostic codes are used to calculate points which represent amount of budget which need to be transferred to the participating hospitals (as per the DRGs). Because this is an advance, estimated lump-sum payment, it is imperative that there be occasional audits to see if the payment was correct or not. The Audit of Medical Records of in-patients can verify if the diagnostic code was in accordance with the coding criteria and matched the actual condition and provided services of the case. This audit also helps improve the overall data collection system of the various service facilities. These data can be aggregated to inform health planning for the future and producing more accurate forecasts.

2. BILLING AUDIT
(FINANCIAL AUDIT)

This is an audit of medical records for specific service areas which use expensive medical interventions. This also pertains to hospital treatment funds for special conditions. In these cases, the NHSO will reimburse participating facilities according to actual cost (as per the fee schedule). For example, these special procedures include cardiac catheterization, shoes for diabetics, patients with ischemic heart disease receiving anti-coagulants, victims of accidents requiring services outside their network, etc.

These audits help define the actual cost of a service in different settings and conditions. This information can be used to assess whether treatment was in accordance with the standard or not. That is because the audit references the treatment criteria for each condition. This process contributes to improvements in standard treatment because of the input and oversight of specialists in the various clinical areas. This also helps improve the payment system in terms of fairness and efficiency.

3. QUALITY AUDIT
(CLINICAL AUDIT)

The Quality (Clinical) Audit is conducted to assess whether the service facilities are up to standard for treatment and ethical practices. The audit covers the full continuum from diagnosis to final outcomes of treatment. A Quality Audit is done, for example, to assess dialysis for patients with kidney failure, treatment of cancer of the breast/lungs/intestine, etc. This kind of audit can help improve the quality of the system of services on a continuous basis, and ensure that standard treatment is being applied appropriately. The data from the audit can help improve clinical research.

4. MEDICAL RECORD AUDIT

This is also an audit of quality of the entries in the medical records to determine if the information is complete and correct. The audit references standards of medical record implementation as issued by the NHSO. The aim of the audit is to improve efficiency of the staff who fill out the medical records in order to produce complete and accurate medical records.

REIMBURSEMENT SYSTEM AND AUDITS

Table 2

FINANCIAL MECHANISM	SERVICE	AUDIT	
CAPITATION	OP/PP (GENERAL)	NO AUDIT	QUALITY AUDIT & MEDICAL RECORD AUDIT
CASE BASED PAYMENT (DRG WITH GLOBAL BUDGET)	IP (GENERAL)	CODING AUDIT	
FEE SCHEDULE	OP/IP/PP (SPECIAL SERVICE)	BILLING AUDIT	
FEE FOR SERVICE	OPAE	BILLING AUDIT	

WHAT IS THE CODING AUDIT FOR THE DRG SYSTEM AND WHAT IS ITS ORIGIN?

"Casemix" is a term to describe a systems approach to groups of patients with certain diseases or medical conditions. This approach can help forecast the need for resources used for a patient. DRG is used to group patients by diagnosis, mainly for acute inpatients. Since 1960s, the DRG concept was developed by Robert Fetter and colleagues from Yale University. Dr. Fetter was asked by the university-affiliated hospitals to develop a program to evaluate the use and quality of medical services. The first step was to develop a method to measure the costs of "products" of the hospitals so that they could be compared fairly. The first version of DRGs was operationalized in 1973 and included 65 Major Diagnostic Categories (MDCs) and 333 groups. The second version was developed for the Federal Social Security Administration and contained 83 MDCs and 383 groups. The third version of DRGs came out in 1978 and was commissioned by the U.S. State of New Jersey for all hospitals in the state. The final version of DRGs was developed by the Health Systems Management Group of Yale University for the Health Care Financing Administration (HCFA). The HCFA-DRG was launched in 1983 and applied to the national Medicare program to improve the prospective payment system. The success of that application led to the replication of DRGs in many other settings, both in the US and internationally.

ADAPTING THE DRGS SYSTEM CODING AUDIT FOR THAILAND

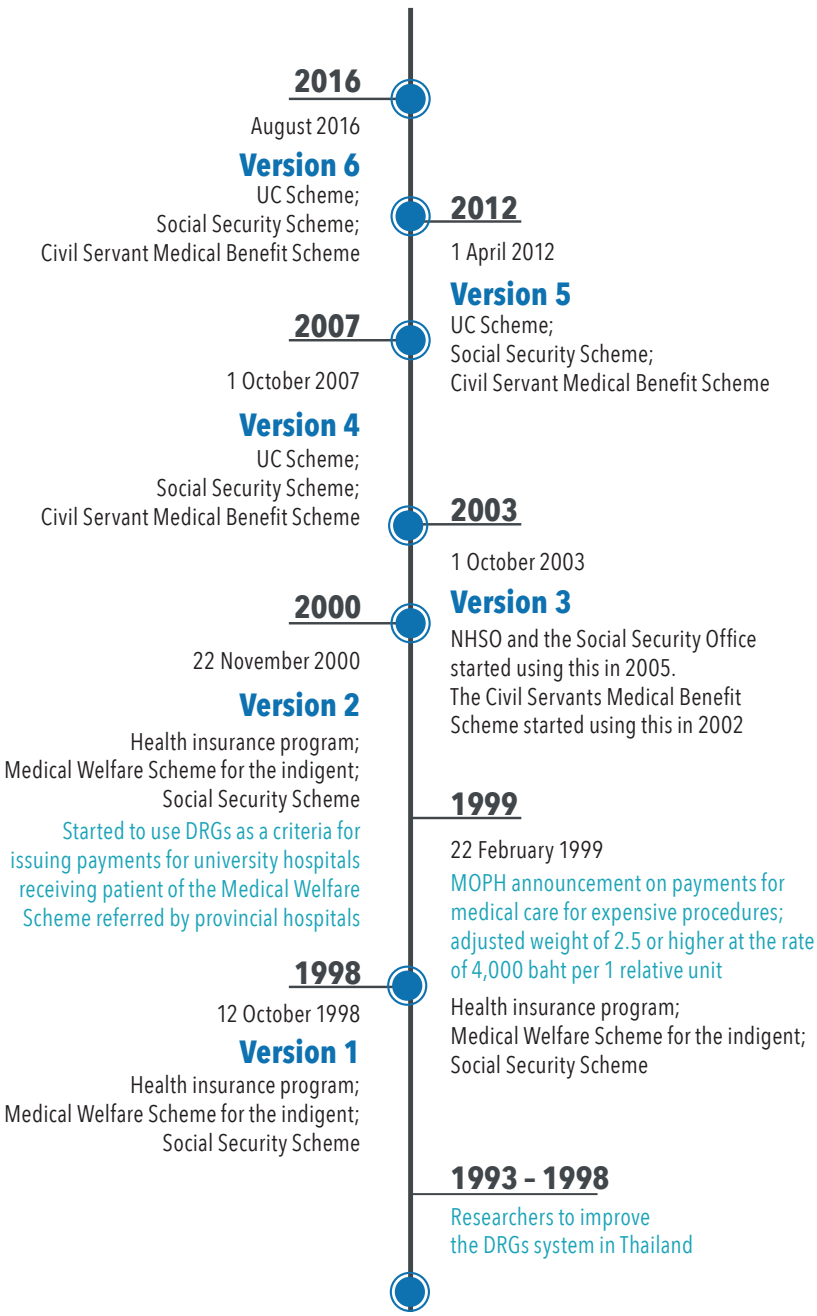
DRGs is one of a number of retrospective payment methods in which funds are transferred to the service provider based on a pre-negotiated fee scale. This creates a uniform and just system of health services compensation. DRGs also helps to control costs since a participating facility needs to allocate resources to conform to a standard cost of a procedure. Each country which applies DRGs has to adapt prices to match the local context of disease and available technology. The application in Thailand is called the Thai Diagnostic Related Group (TDRG) and was developed in 1993. The initial application was part of the pilot research project to assist victims of Road Traffic Accident Protection Act in 1992. Subsequently, the TDRG was refined and formally applied to the previous medical welfare scheme. Up to the time of this writing, there have been six versions of the TDRG. The latest version has 26 MDC groups, 603 Disease Clusters, and 1,543 DRGs.

The Coding Audit was first applied in Thailand in 1998 when the first version of the TDRG was in use. The audit system was developed for the medical treatment program for lower-income patients of the medical welfare scheme and the SSS. In 1999, the Coding Audit was applied (by Dr. Pradit Wonkanaratanakul) to the 2nd tier compensation system for high-cost medical treatment in six pilot provinces. This pilot project was managed by the Strategy and Planing Division of the Ministry of Public Health (MOPH). The clinical facilities in the six provinces sent data on medical treatment, which were classified across 12 "standard folders." The data were sampled to compare against empirical data from the same locations in order to assess whether costs were appropriate or not. The MOPH was concerned that some hospitals would lose money under the system by not being adequately compensated for the costs of their procedures. Thus, central budget was made available to hospitals for the more expensive procedures using a relative weighting (RW) adjustment (Adj.) factor of 2.5. It was important to conduct periodic audits of this system to ensure that claims for reimbursement did not get out of hand. Initially, there were only six auditors in the program, and they could audit about 40 hospitals per year.

In 1997, Thailand was hit by the financial crisis which resulted from a sudden devaluation of the baht on global currency markets. At the same time, Thailand was planning to reform the medical insurance program for civil servants. In 1998, a coding audit was conducted of that program to detect fraud in charges for treatment of inpatients. In 2002, an official announcement was made to clarify the stated criteria for auditing by the Ministry of Finance on the topic of "Medical Treatment Claims and Reimbursement." This announcement gave authority to the Comptroller-General's Department or other designated agencies to perform audits on costs of medical treatment of inpatients in government hospitals.

DEVELOPMENT OF DRG DIAGNOSIS-RELATED GROUP SYSTEM IN THAILAND

Figure 5



Audits of the National Health Security Fund typically begin with a Coding Audit. The audit team which visits the hospitals to inspect the medical records can process 1,000 records per year. There are two types of the samples. One is the random of 1% of total inpatient records from all hospitals. Another is the random sample of 3% of total inpatient records from hospitals which have 'suspected cases' e.g. having an irrelevant or inconsistent adjusted RW, user charges, or length of stay with first diagnosis.

During the first few years, the audit process was used as a sharing and learning process between hospitals and the auditors. Later on, the audit was gradually expanded to cover hospitals at all levels of the MOPH with sampling and, finally, university hospitals were audited too.

In order to increase efficiency of audits, in 2003 the NHSO assigned the various provincial public health offices (PHO) to inspect medical records with Adj. RW < 2.5, and the NHSO headquarters would audit records with an Adj. RW > 2.5. Staff at the provincial level were trained in the audit process. Those provinces with separate budgeting systems for in- and out-patients since 2005 were in a position to do their own audits. The NHSO also has regional branch offices, the first of which was established in Khon Kaen, with responsibility for 19 provinces in the Northeast region. Audit systems were set up for sub-regional zone offices, and medical personnel were trained in the medical records auditing process. A set of guidelines was produced for conducting the records audit as a reference for the periphery. These guidelines included expert advice and ethical procedures, e.g., personnel must not audit records of cases they attended or even of their own hospital or province. Also, they were not supposed to calculate the amount of funds to be remitted to or received from NHSO, since that would be potentially biased.

Following this regional implementation of audits in the Northeast, in 2006 the NHSO expanded this system nationwide as the national standard procedure. Up to that point, the problems which the audits had exposed include: (1) Auditing practices in the field were not standardized

THE SYSTEM FOR AUDITS OF MEDICAL RECORDS WAS UPGRADED TO AN ON-LINE SYSTEM

USING THE ELECTRONIC MEDICAL AUDIT (e-MA) PROGRAM SINCE 2017

and, thus, the findings and recommended actions were not standardized; (2) There was no standard software supporting data entry of disease coding; and (3) There was a lack of systematic reimbursing of expenditures related to the audit of medical records (e.g., compensation for physicians per record, cost of facility conducting the audit, etc.). Then, in 2008, the NHSO established the Bureau of Claims and Medical Audit (BCMA) with the responsibility to audit medical records itself, and produce a handbook of standard operating procedures (SOPs) on auditing reimbursements for health services (2010). During this time, there were adjustments made to the handbooks on DRGs, ICD9-10, SOPs for disease coding, etc. There adjustments were made in the Auditogram, thus replacing the Visual Fox program. The new system allowed for sampling medical records, specifying the criteria for the audit, analysis of the disease codes, and presenting results in a report format to pinpoint which medical records needed an on-site inspection.

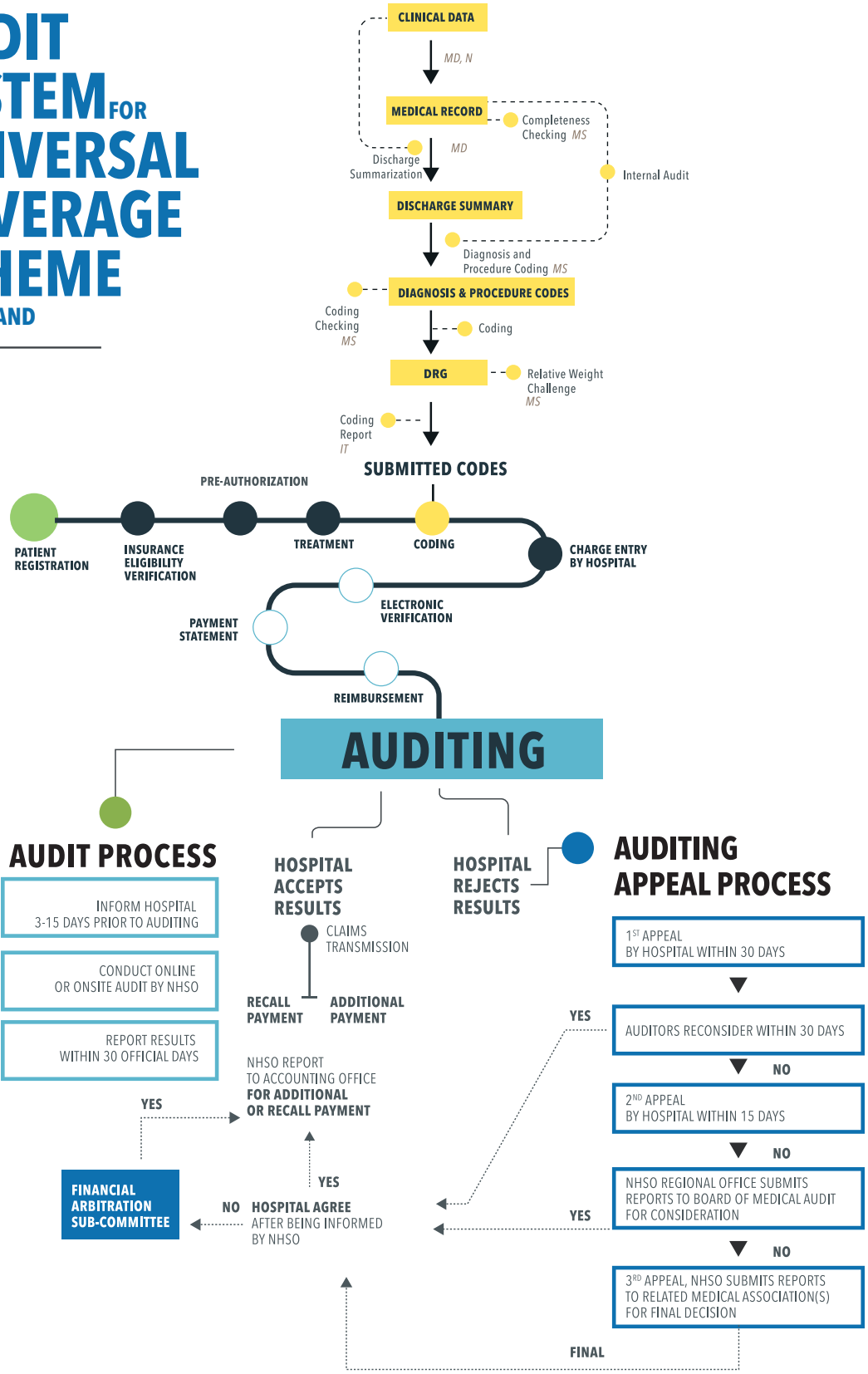
Since 2016, the system for audits of medical records was upgraded to an on-line system using the electronic Medical Audit (e-MA) program. The program was fully operational by 2017, and the program can sort medical records by geographical health zone and conditions of the audit by level of service outlet. The e-MA then tells the zonal NHSO office which medical records from which hospitals need closer inspection, which can be done locally by a physician and coder. Automation of the audit system has significantly improved efficiency and accuracy. This also enables the central NHSO to do re-audits of a 3% sample of medical records as another level of checking. The resulting identification of funds that need to be remitted to the NHSO helps conserve budget, and creates transparency and fairness to hospitals. The on-line system reduces travel to the field and associated costs as well.

The Thai audit system can be compared with the Australian system, which is considered a model for other countries. Australia has an appeal system which has been adapted to the Thai setting too. For example, once the zonal NHSO offices send the information to the audited hospital, the hospital has the option of accepting the findings or appealing. If there is an appeal, NHSO will send the audit report back to the original auditor to re-check the audit findings. The results of that re-check are forward back to the hospital which appealed the audit findings. If the hospital is still not satisfied, it may issue a second appeal to NHSO headquarters. If still not satisfied with that tertiary review, then a final appeal may be issued to the Thai Medical Council.

In sum, the Thai auditing system for payments and reimbursements to hospitals has steadily improved and expanded over time. With each improvement, the system has been tailored to match the Thai context. There has been capacity building of staff, automation and on-line system development, expansion of the appeal system, and production of SOPs as reference material for regional and sub-regional offices. However, the refinements are never final since the conditions, procedures and products are constantly evolving. The Coding Audit system needs to be continually up-dated to keep up with the changes.

AUDIT SYSTEM FOR UNIVERSAL COVERAGE SCHEME IN THAILAND

Figure 6



HOW ARE PAYMENTS MADE?

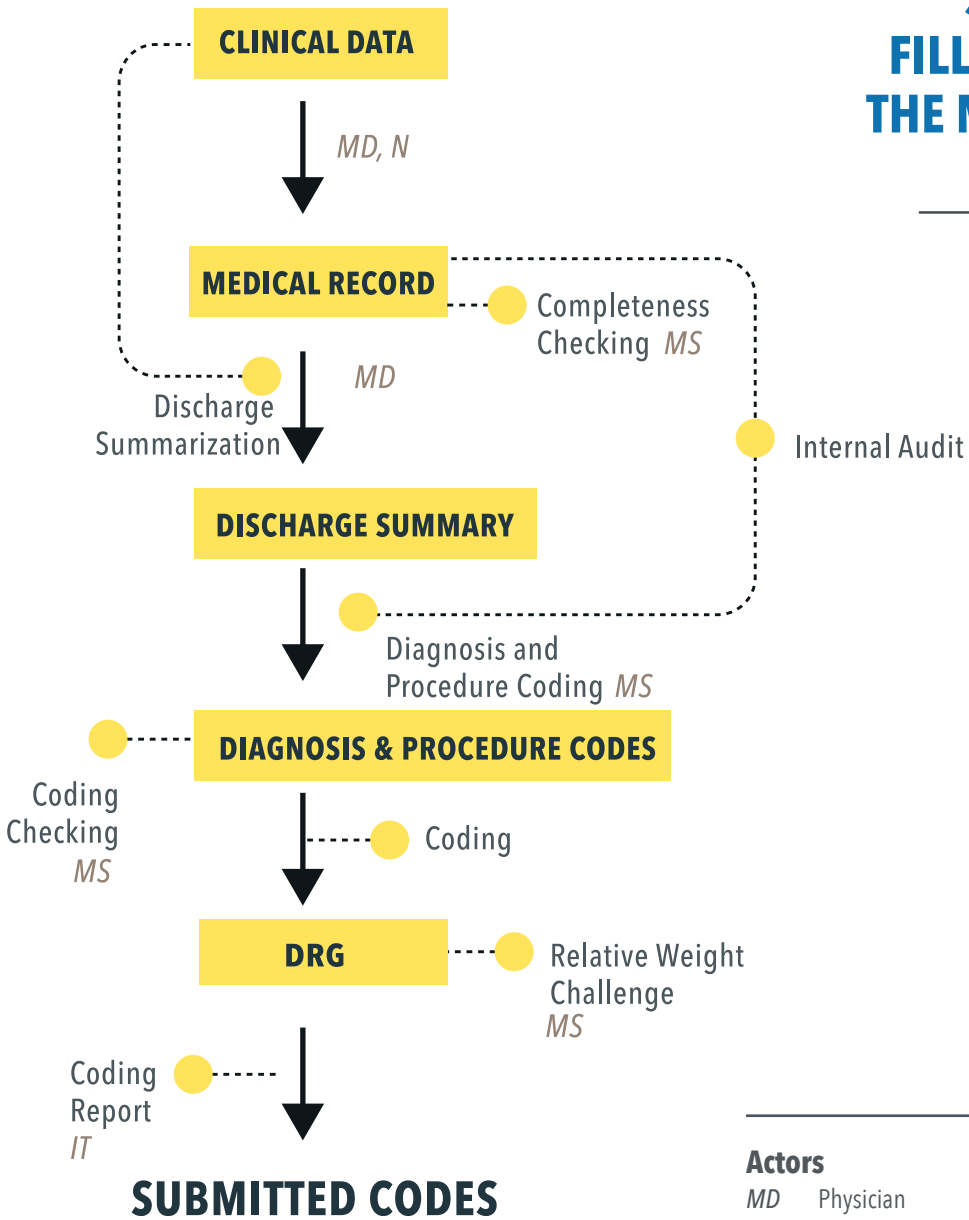
As already discussed, the recorded disease code affects the amount of payment the hospital receives. While the medical record is filled out by the attending physician, the ICD code is entered by the medical statistician. Thus, there is opportunity for ambiguity, inconsistency or contradiction of data. The statistician may enter the wrong code, an incomplete code, or other error. This can result in either over-claims or under-claims in compensation for the hospital. Thus, the Coding Audit is designed to identify these anomalies in the system and correct them.

The DRG system classifies patients by disease or condition to help plan the resources the hospital will need to manage a certain number of cases by type. There are two key variables in this calculation. The first is the number of inpatient days at the hospital. The second variable is the cost of services. This value is adjusted by the relative weighting (RW) to produce the Adjusted Relative Weight (Adj. RW). The value is then used to calculate the total amount to be paid to the hospital for the service (see below):

The total amount for a hospital = Sum Adj. RW x base rate

STEPS IN FILLING OUT THE MEDICAL RECORD

Figure 7



Actors

MD	Physician
N	Nurse
MS	Medical Statistician
IT	Information Technology staff
FA	Finance / Accounting staff

CODING AUDIT PROCESS

This audit begins after the NHSO has issued a payment to a participating service outlet for a treatment or procedure (post-reimbursement audit). In this case, there is no advance audit of medical records before issuing the payment in order to efficiently compensate the hospital. In addition, if the hospital does not accept the findings of the audit, then it can appeal up to two times and, ultimately to the Royal College or Professional Credentials Association. The following outlines the steps in the medical records audit as of 2019:

1. The hospital sends the inpatient data records to the NHSO within 30 days after the discharge date. If the hospital submits the data after the 30 days, then the compensation may be less than they should receive.

2. Electronic verification is done by using a computer program to screen out the abnormal data (e.g., male pregnancy, female prostate cancer, etc.). If irregularities are detected, then the attending hospital is informed.

3. After the 43 folders of inpatient data are sent to the audit office, the data are entered into the Auditogram program for a preliminary inspection of the medical records as per NHSO criteria, e.g., the Adj. RW is high but the length of stay (LOS) is low; vice versa; or if the procedure is beyond the capacity of the hospital to perform.

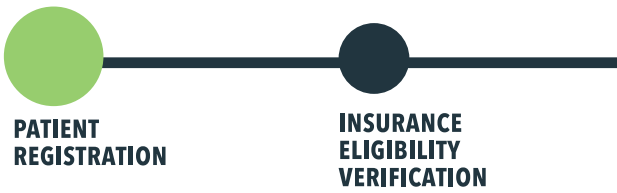
4. The program produces a report of irregularities found, classified by the 70 conditions by hospital and health zone. A sample of medical records is drawn for the auditor to conduct a deeper inspection, including a center-wide assessment and the e-MA form.

5. The sampled medical records which are examined are forwarded to the relevant zonal NHSO. These records may be paper records or electronic (e-claim) forms.

6. The zonal NHSO conducts an audit of the sampled medical records with reference to summary criteria, and assigns a disease code or surgery code, as specified by the Bureau of Claims and Medical Audit, with reference to the standard guidelines for disease code assignments (performed by the Strategy and Planning Division of the MOPH, in collaboration with experts). This process is applied uniformly throughout the country. Any person who audits medical records must have been formally trained and certified as an official auditor by the Bureau of Claims and Medical Audit.

7. After the audit, the zonal NHSO reports the results to the hospital that was audited. If the hospital does not accept the findings, they can appeal. If they accept the findings, then the process of compensation (if under-claimed) or remittance (if over-claimed) can continue.

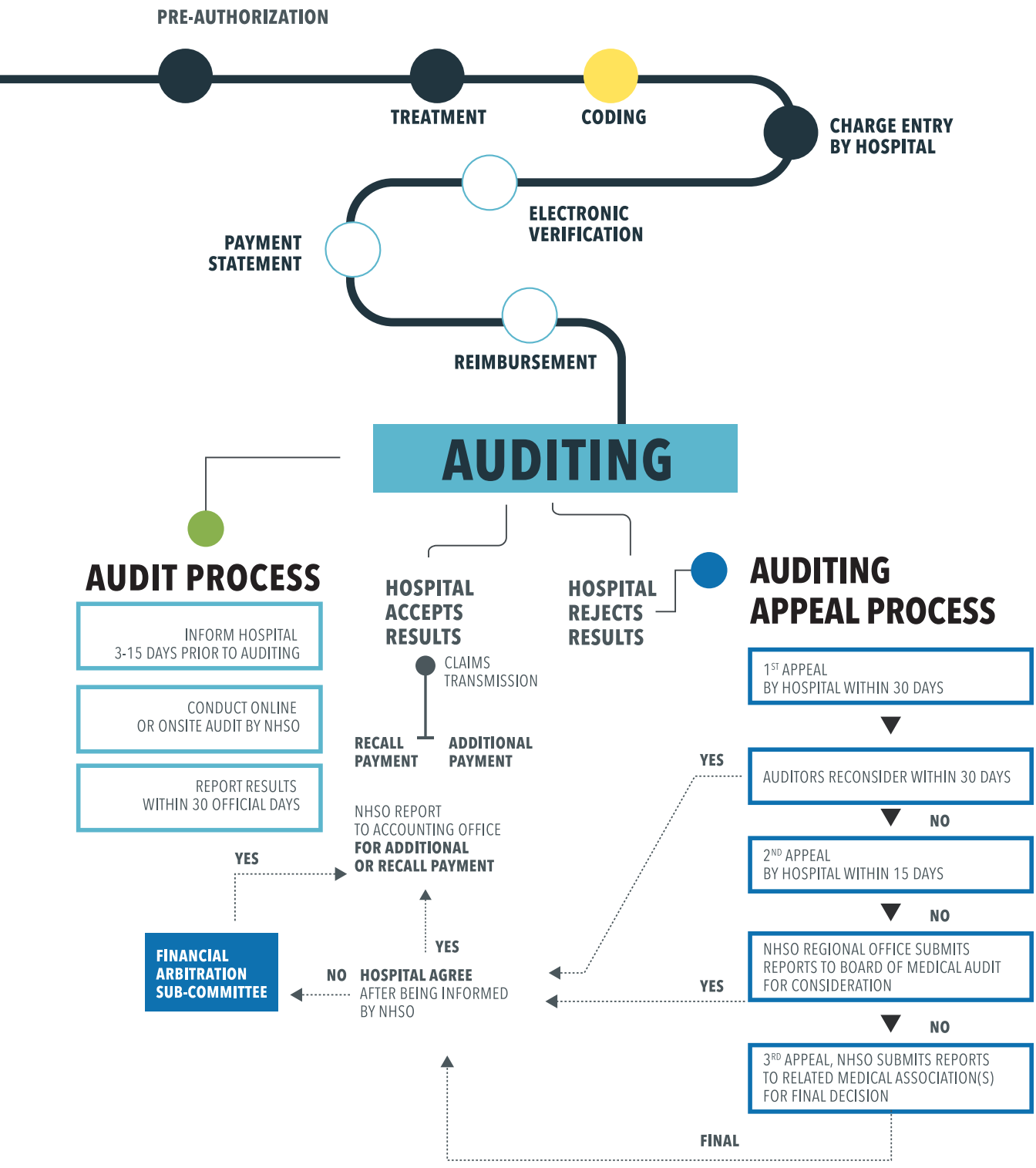
AUDIT APPEAL PROCESS



The following graphic depicts the steps in the appeal of an audit report. This applies to all three types of audits: Coding, Billing, and Quality Audits.

STEPS IN APPEALING THE FINDINGS OF REVIEW COMMITTEE OF THE MEDICAL RECORDS AUDIT

Figure 8


PRE-AUTHORIZATION
TREATMENT
CODING
CHARGE ENTRY BY HOSPITAL
ELECTRONIC VERIFICATION
PAYMENT STATEMENT
REIMBURSEMENT
AUDITING
AUDIT PROCESS
INFORM HOSPITAL 3-15 DAYS PRIOR TO AUDITING
CONDUCT ONLINE OR ONSITE AUDIT BY NHSO
REPORT RESULTS WITHIN 30 OFFICIAL DAYS
HOSPITAL ACCEPTS RESULTS
CLAIMS TRANSMISSION
RECALL PAYMENT
ADDITIONAL PAYMENT
HOSPITAL REJECTS RESULTS
AUDITING APPEAL PROCESS
1ST APPEAL BY HOSPITAL WITHIN 30 DAYS
AUDITORS RECONSIDER WITHIN 30 DAYS
YES
NO
2ND APPEAL BY HOSPITAL WITHIN 15 DAYS
NO
NHSO REGIONAL OFFICE SUBMITS REPORTS TO BOARD OF MEDICAL AUDIT FOR CONSIDERATION
YES
NO
3RD APPEAL, NHSO SUBMITS REPORTS TO RELATED MEDICAL ASSOCIATION(S) FOR FINAL DECISION
FINAL
NHSO REPORT TO ACCOUNTING OFFICE FOR ADDITIONAL OR RECALL PAYMENT
YES
YES
NO
HOSPITAL AGREE AFTER BEING INFORMED BY NHSO
FINANCIAL ARBITRATION SUB-COMMITTEE

SAMPLING

SAMPLE SELECTION OF MEDICAL RECORDS FOR CODING AUDIT

The NHSO cannot audit all the medical records throughout the country. However, the NHSO is constantly striving to increase the coverage of the audit to acquire the most accurate picture possible. However, the sampling procedures should give a good indication of the trends in accuracy of medical records. The size of the sample depends on the quality of the summary of the patient medical records. In the past, the NHSO would rate hospitals by points, depending on the accuracy of their inpatient records. Those hospitals with a history of inaccurate records would be subject to more audits and inspections than those with more accurate records.

In each year, the NHSO has a target to audit approximately 5% of the medical records of inpatients in participating hospitals of the NHSO system. Charts with data suggesting an error in coding are selected for further inspection, using the Auditogram program. There are 20 conditions which indicate that an audit be performed of the records and the hospital. Often, the irregularities are an unusual number of coding errors, or an overly large number of inpatients. Hospitals are divided by grade (e.g., green, yellow, pink, orange, red). Those graded red have a higher chance of being audited than those graded orange, pink, yellow or green, respectively. Grouping hospitals in this way began in 2015 in order to more efficiently target medical records in problem areas. Results of audits over multiple-year periods area analyzed to determine trends.

STEPS IN THE SELECTION OF MEDICAL RECORDS FOR CODING AUDIT:

1. TARGETED SAMPLING
(CONDITIONAL SELECTION)

In this step, all the medical records of participating hospitals in the NHSO are analyzed according to the criteria to identify irregularities. There are two conditions for selection: Irregularity of the data in the medical records and irregularity of the hospital (see Table 2).

Irregularities in the medical record data:

i. Too long length of stay
ii. High treatment cost but short length of stay
iii. Disease or surgery codes is not consistent with the criteria

Irregularity of the hospital

i. The treatment exceeds the capacity of the hospital (e.g., cardiac surgery in a community hospital)
ii. The hospital provides much more complex treatment compared to other hospitals at the same level

2. RANDOM SAMPLING
(UNCONDITIONAL SELECTION)

This is a national sample which should reflect the actual situation of medical records throughout the nation. Thailand has set the sample size at 5% of all inpatient records.

Table 3

SAMPLE OF THE CONDITIONAL SELECTION OF MEDICAL RECORDS FOR A CODING AUDIT USING AUDITOGRAM

DATA SELECTION CRITERIA
• Top 20 diseases ranked by number of admission
• Top 20 diseases ranked by reimbursement
• Unrelated procedures with principle diagnosis
• High RW point but low admission days and low cost
• Patients with SDx or severe complication but low admission days and discharged status as "cured"
• Sepsis (PDx or CC) with few admission days and discharged status as "cured"
• Shock with many causes for short admission length
• Appendectomy with co-morbidity or severe complications
• etc.
HOSPITAL SELECTION CRITERIA
• High-level trend in adjusted RW-per-admission (Casemix Index), compared year to year
• More-than-average claims RW>3
• More-than-average claims in A&E
• Coding diagnosis and procedure in excess of hospital capacity
• High-level PCCL (Patient Clinical Complexity Level), compared with other hospitals of similar level
• Random auditing with number of mistakes above the mean
• etc.

BILLING AUDIT & QUALITY AUDIT

Based on the criteria and rationale, the Billing Audit is different from the Coding Audit in the following ways:

1. A Billing Audit is required if the project has separate funds for budgeting
2. There is a complaint from a fund administrator about an irregularity in reimbursement for equipment or services provided by a service outlet
3. An administrator or observer sees an irregularity in reimbursement in the fund, and feels there is a need for an audit to assess accuracy
4. The sample size varies by the amount of auditing and number of reimbursement requests by given hospitals; there is no stipulated size in any given year; it depends on observed irregularities; usually 10% of suspicious records are sampled

In sum, the preliminary criteria for performing the audit are as follows:

a. There is a high volume of equipment purchases
b. There are reimbursement requests from special funds, e.g., HIV, diabetes, hypertension, kidney failure, chronic obstruction, asthma, cancer, accident/emergency fund in the OPAE group
c. There is reimbursement request from the OPAE fund over 2,000 baht or multiple OPAE fund reimbursement requests

SAMPLING
OR SELECTION FOR A BILLING AUDIT AND QUALITY AUDIT

The result of the Billing Audit will be data which can be used by the fund to oversee reimbursements for various equipment of OPAE group items and, perhaps, modify the criteria for reimbursement, or as a basis for referring data to the Royal College for mutual understanding. The number of medical records which receive a Billing or Quality Audit is less than those receiving a Coding Audit. This is because the Coding Audit is a principle responsibility of the Bureau of Claims and Medical Audits. The number of medical records subject to a Billing and Quality Audit depends on the annual budget and based on the calculation of the number of patients being served by a special fund.

SELECTION OF SERVICE FACILITIES FOR BILLING AUDIT AND QUALITY AUDIT

The NHSO samples service facilities for inspection by the Billing or Quality Audit, independently of whether the outlet was audited in the previous year or based on the results of the audit. After selecting the site, the next stage of selection is the medical records of the procedure or product which is of interest (e.g., stroke cases receiving anti-coagulants).

AUDIT OF SERVICE FACILITIES WITH ABNORMALLY HIGH SERVICE FEES

Activities which are the target for the Billing and Quality Audits are those with expenditures for special procedures or products through a fund, e.g., a Fee-for-service or Fee Schedule. In those cases, it is possible for the outlet to request a very large number of reimbursements, and that will attract the attention of NHSO and imply the need for an audit.

STEPS IN
THE AUDIT OF MEDICAL RECORDS FOR BILLING, QUALITY, AND MEDICAL RECORD AUDITS

BILLING AUDIT

1. Select the service facilities to be audited;
2. The zonal NHSO which contains the selected service facilities calls in the medical records of the service outlet for an audit;
3. The auditor must be someone trained and certified by the Bureau of Bureau of Claims and Medical Audit, and a medical specialist in the area to be audited must be part of the audit team. This may include specialists in hearing aids, or knee replacements, etc., who can help make judgments about appropriateness of procedures;
4. The medical records that are to be audited are compared against the criteria for specific expenditures, which may differ by fund or procedure group;
5. After completing the inspection, the NHSO will process the reimbursement (or request a remittance from the service outlet) to reconcile spending, this is similar to the Coding Audit process.

QUALITY AUDIT

1. The NHSO selects the service facilities providing treatment or procedure of interest
2. The relevant medical records are then selected/ sampled for inspection. These might include records of stroke patients who received anti-coagulants. In these cases, the NHSO headquarters does the audit.
3. The medical records of the service facilities are inspected in detail, from the point of diagnosis through to the final stage of treatment, with strict reference to the national treatment standards. The types of diseases or procedures that are subject to a system quality audit include kidney dialysis in cases of kidney failure, cardiac catheterization in case of ischemic heart disease, and other complex conditions. An expert in the medical area of interest is part of the Quality Audit team.
4. After the audit is complete the NHSO will process the reimbursement (or request a remittance from the service outlet) to reconcile spending, this is similar to the Coding Audit process.

MEDICAL RECORD AUDIT

The audit of quality of information in the medical records is conducted by NHSO headquarters and zonal office staff. The auditors are persons who have been fully trained. The inspection compares the records with the national standard. This audit does not result in reimbursement or remittance since its aim is to improve quality of the data recording process and quality of treatment. If the medical records are found to be deficient, then the auditors provide advice to the service outlet to make improvements going forward.

Table 4

DEVELOPMENT OF THE QUALITY AUDIT SYSTEM

YEAR	SUBJECT OF THE AUDIT OF QUALITY OF SERVICES
2008	Audit of quality of treatment for cancer using the Lymphoma protocol for adults
2009	Audit of quality of treatment HIV
2010	Audit of medical records (Medical Record Audit) version 1
2010	Audit of quality of treatment of kidney stones
2011	Audit of quality of cancer treatment, based on CA Breast protocol
2011	Audit of quality of fast-track treatment of stroke through injected anti-coagulant
2011	Audit of quality of treatment STEMI patients with injected anti-coagulant
2011	Audit of quality of use of specific medicines (category E of the Thai National Essential Drug List, NEDL) using IVIG in Kawasaki disease patients
2013	Care of asthma patients
2013	Reimbursement for and quality of Hemodialysis
2014	Audit of medical records (Medical Record Audit) version 2
2014	Inspection of unit cost of Hemodialysis
2014	Audit of quality of treatment of cases of cancer of the lung, breast, large intestine and rectum
2015	Audit of quality of treatment drug-resistant HIV
2015	Specific medicines of category E in the Thai NEDL in cases using Peg interferon in indication Hepatitis C Genotype 2, 3
2016	Inspection of quality of Percutaneous coronary intervention (PCI)
2016	Specific medicines of category E in the Thai NEDL in cases of breast cancer treated with Trastuzumab
2017	Specific medicines of category E in the Thai NEDL in cases treated with IVIG for severe ITP

Source: NHSO 2018

OUTCOMES
OF PAST IMPLEMENTATION CODING AUDIT

Table 5
PERCENT RESULTS OF THE AUDIT BY TYPE OF IRREGULARITY: 2015-17

	2015	2016	2017
Number of service facilities audited	535	550	777
Number of reimbursements for in-patients (issues)*	5,913,338	6,160,123	6,125,732
Number of Adj. RW	6,826,927.7389	7,142,732.8670	7,276,319.0422
Number of medical records audited (issues)	122,036	134,213	155,714
Percent of medical records audited	2.06	2.18	2.54
RESULTS OF THE AUDIT			
Number of medical records with incorrect reimbursement (issues)	109,295	120,414	139,867
Number with increased Adj. RW	6,482.9612	6,677.3642	8,415.7787
Number with decreased Adj. RW	36,848.2210	52,109.5703	61,270.5582
Number with a change in the Adj. RW	30,365.2598	45,432.2061	52,854.7897
• Percent of change in Adj. RW	20.24	22.57	19.10
• Disbursements (baht)	45,380,728.40	46,741,549.40	58,910,450.90
• Remittances (baht)	257,937,547.00	364,766,992.10	428,893,907.40
• Net expenditures (baht)	212,556,818.60	318,025,442.70	369,983,527.90
• Ratio of remittances to excess disbursements	5.68	7.80	7.28

* Excludes cases of normal delivery and child birth
** Estimate of 1 Adj. RW = 7,000 baht

OVERVIEW OF THE CODING AUDIT

During 2015-2017, a 3% sample of medical records was conducted for the purpose of inspection. The audit found irregularities in reimbursements in that the Adjusted Weights for Relative Unit services exceeded the actual cost by about 20%. There had to be requests for remittances to cover the over-claims. Some of the over-claims were 5 to 7 times as high as they should have been, and there was an increasing trend in over-claims during the period.

SOME OF THE OVER-CLAIMS WERE

5-7 TIMES

AS HIGH AS THEY SHOULD HAVE BEEN

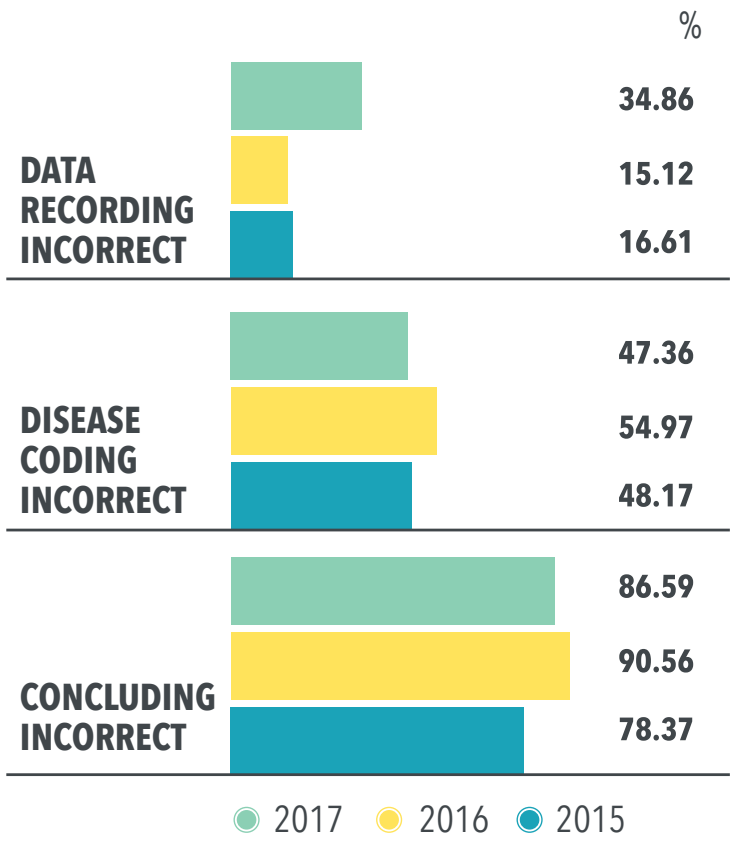


FIGURE 9

PERCENT RESULTS OF THE AUDIT BY TYPE OF IRREGULARITY: 2015-17

Source: Bureau of Claims and Medical Audit, NHSO

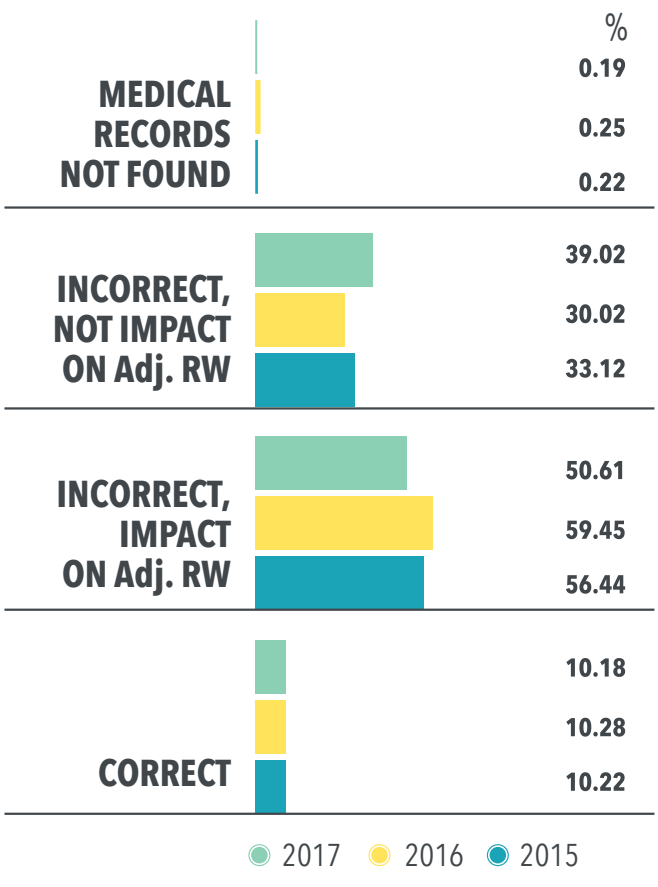
The audit of medical records found that there were inaccurate diagnoses compared with the recorded disease codes (about half of irregularities), and incorrect data recordings showed an increasing trend by 2017. Some of this may be attributable to changes in criteria of correctness, e.g., concerning the time of inception of treatment and discharge.

1 OF 3
NOT IMPACT ON
Adj. RW

10%
OF MEDICAL RECORDS
CONCLUDED CORRECTLY

FIGURE 10

PERCENT RESULTS OF THE AUDIT BY TYPE OF IRREGULARITY WHICH IMPACTED ON THE ADJUSTED RW DURING 2015-17



Source: Bureau of Claims and Medical Audit, NHSO

THE MEDICAL RECORDS WHICH WERE ASSOCIATED WITH AN INCORRECT REIMBURSEMENT

Of all the medical records which were associated with an incorrect reimbursement, over half the errors impacted on the Adjusted RW, and one-third did not. Only 10% of the records were correct

SUMMARY DIAGNOSIS OF CO-DISEASE OR COMPLICATIONS WITHOUT EVIDENCE IN THE MEDICAL RECORDS

52.8%

INCORRECT SUMMARY DIAGNOSIS OF PRINCIPAL DISEASE

31.48%

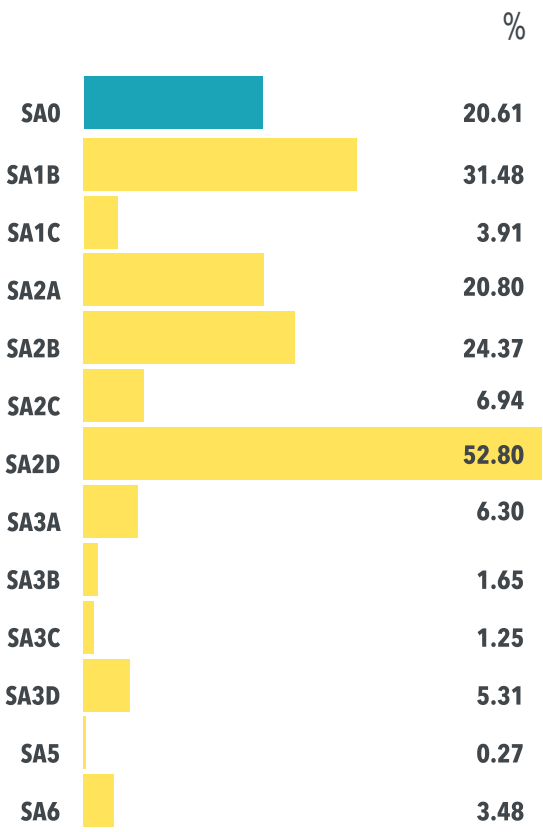


FIGURE 11

PERCENT ASSESSMENT OF DIAGNOSIS OF DISEASE AND SURGERY IN 2017*

Source: Bureau of Claims and Medical Audit, NHSO

CORRECT
DIAGNOSIS OF DISEASE AND SURGERY
20.61%

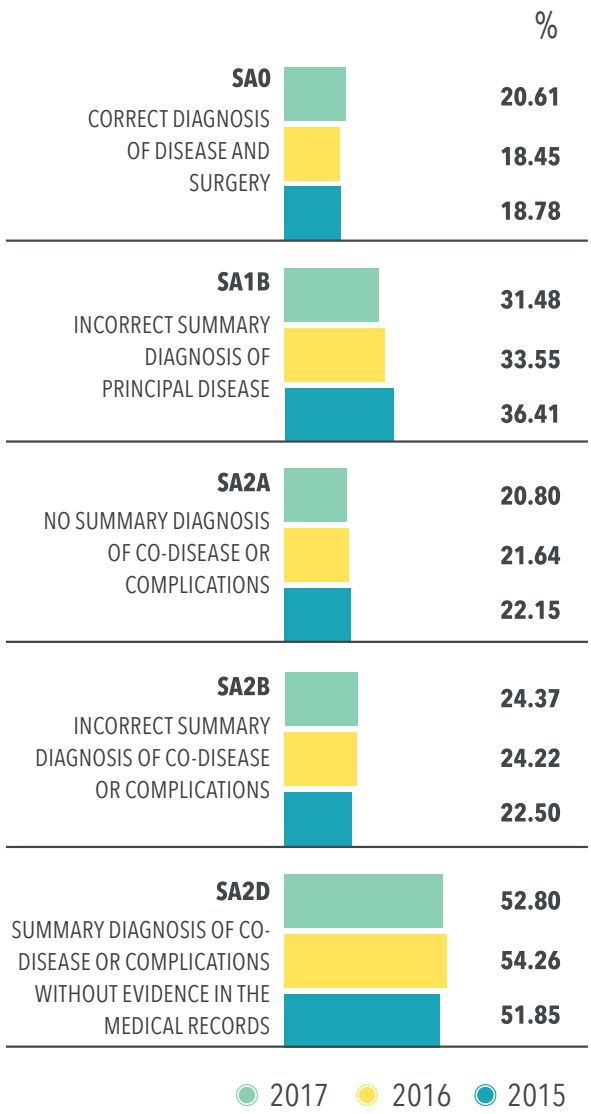
*Remarks:
SAO: Correct diagnosis of disease and surgery
SA1A: No summary diagnosis of principal disease
SA1B: Incorrect summary diagnosis of principal disease
SA1C: Indeterminate summary diagnosis of principal disease
SA1D: Summary diagnosis of principal disease without supporting evidence in medical records
SA2A: No summary diagnosis of co-disease or complications
SA2B: Incorrect summary diagnosis of co-disease or complications
SA2C: Indeterminate summary diagnosis of co-disease or complications
SA2D: Summary diagnosis of co-disease or complications without evidence in the medical records
SA3A: No summary of surgery
SA3B: Incorrect summary of surgery
SA3C: Indeterminate summary of surgery
SA3D: Summary of surgery without evidence in the medical records
SA5: No summary in the medical records
SA6: Other problems with the summary of diagnosis or surgery and audit, unclear penmanship, ambiguous description or summary, use of esoteric or unorthodox abbreviation

In 2017, the analysis of errors of diagnosis of disease or surgery found that only one in five was correct, and over half of diagnosis of co-disease or complications had no supporting information. Nearly one-third of principal diseases was incorrect, and one-fourth of diagnosis of co-disease or complications was incorrect. One-fifth of co-disease and complications was not diagnosed.

Figure 12

PERCENT ASSESSMENT OF DIAGNOSIS OF DISEASE AND SURGERY OF THE TOP 5 CONDITIONS DURING 2015-17

Source: Bureau of Claims and Medical Audit, NHSO



THE MEDICAL RECORDS WHICH WERE ASSOCIATED WITH THE CODING ERRORS

After taking into account all the coding errors, the net correct coding of diagnosis of disease and surgery was only 56.0%. The most common error was assigned codes for co-disease and complications (17.5% incorrect), followed by incorrect principal disease code (12.9%), no code for co-disease and complications (12.6%), and incorrect addition of a co-disease code or complication (11.5%).

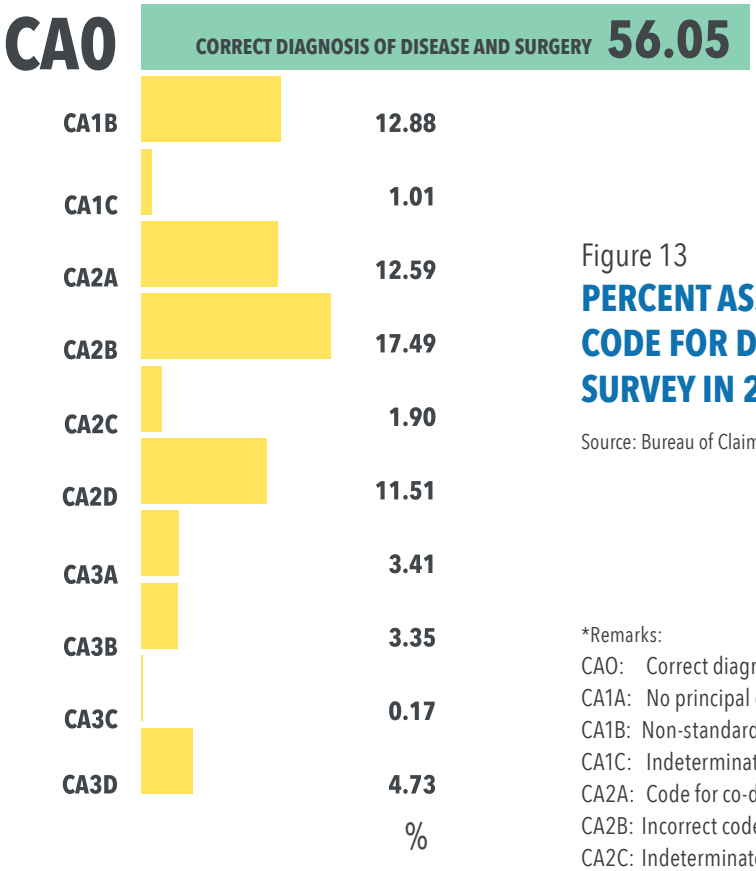


Figure 13

PERCENT ASSESSMENT OF THE CODE FOR DIAGNOSIS AND SURVEY IN 2017**

Source: Bureau of Claims and Medical Audit, NHSO

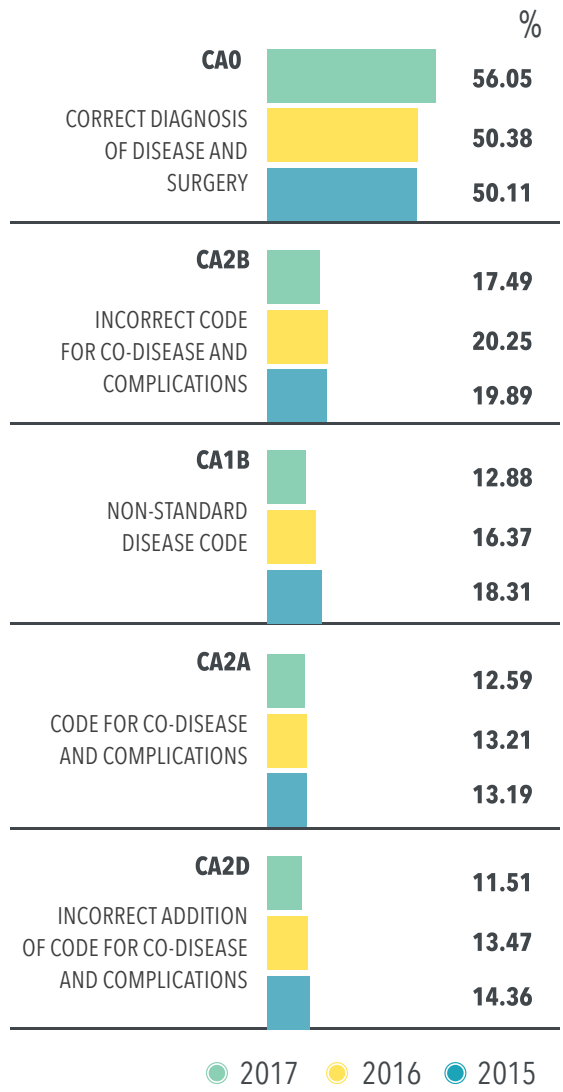
*Remarks:
CAO: Correct diagnosis of disease and surgery
CA1A: No principal disease
CA1B: Non-standard disease code
CA1C: Indeterminate disease code
CA2A: Code for co-disease and complications
CA2B: Incorrect code for co-disease and complications
CA2C: Indeterminate code for co-disease and complications
CA2D: Incorrect addition of code for co-disease and complications
CA3A: No code for surgery
CA3B: Non-standard code for surgery
CA3C: Indeterminate code for surgery
CA3D: Incorrect addition of code for surgery
CA6: Other problems in the coding of diagnosis or surgery

When comparing the coding data for diagnosis of disease and surgery during the period of 2015-17, the audit found that the trend in correct coding was upward, from 50.1% to 50.4% to 56.0%, respectively. Correspondingly, incorrect code for disease and surgery declined, while incorrect code for co-disease or complications increased

Figure 14

PERCENT ASSESSMENT OF THE CODE FOR DIAGNOSIS OF DISEASE AND SURGERY OF THE TOP 5 CONDITIONS DURING 2015-17

Source: Bureau of Claims and Medical Audit, NHSO



RESULTS
OF PAST IMPLEMENTATION BILLING AUDIT & QUALITY AUDIT

The Billing and Quality Audit systems experience changes in groups of diseases of interest each year, and there is no sampling system comparable to the Coding Audit. Most audits pertain to funds which are separate from the capitation system, and reimbursement is by volume of services for diseases or conditions with high treatment costs, high number of procedures, or when there has been a complaint filed about quality of service (e.g., kidney dialysis, cardiac catheterization, special shoes for diabetics, knee replacement surgery, etc.). For these reasons, it is difficult to conduct an objective comparison over time. In any event, there are groups of diseases for which there is continuous audit data over a period of many years (e.g., kidney dialysis, etc.).

SUMMARY
OF BILLING AUDIT AND QUALITY AUDIT FOR HEMODIALYSIS (HD)

1.COMPENSATION PAYMENTS

The NHSO conducts billing audits of hemodialysis (HD) and Erythropoietin (EPO) therapy in centers with the authorized equipment and registration to conduct these for eligible participants in the NHSO universal care system. A fee of 1,500 baht is paid per procedure for general patients, and 1,700 baht for higher-risk patients. For EPO therapy, patients are screened for lowest Hematocrit during the treatment month. The NHSO guidelines call for 8 vials for patients with Hematocrit level from 30% or less, and 4 vials for those with values of over 30%. The service facility needs to monitor the patient's Hematocrit every four weeks. The following table shows the audit findings:

Table 6

NUMBER OF SERVICE FACILITIES PROVIDING HD AND EPO THERAPY WHICH RECEIVED AUDITS DURING 2014-15 AND 2017

Year	Number of service facilities audited	Number of Reimbursement events	Number of times that HD was incorrect		Number of EPO vials used	Number of EPO therapy events	
			Times	%		Times	%
2014	71	64,112	1,214	1.89	37,971	1,950	5.14
2015	73	86,664	255	0.29	47,256	599	1.27
2017	69	62,620	426	0.68	54,286	3,156	5.81

Source: Bureau of Claims and Medical Audit, NHSO

The audit involves a sampling of service facilities with reimbursements for high costs of service, those with quality issues, or facilities for which there have been complaints from patients about service management. Those facilities meeting these criteria are sampled from each health zone, and no outlet is selected two years in a row. The findings of the audit are that most of the facilities have followed correct procedures. The incorrect cases involve lack of evidence of service provision that was reimbursed for, or there is no record of the patient actually receiving the therapy, e.g., no signature from the injectionist, no sticker of the medicine attached to the medical record, or no prescription for the medicine.

2. QUALITY OF SERVICES:

For this audit, the indicator that is used is whether the HD or treatment meets the standard (as per 2014 guidelines of the Committee for HD Treatment Standards).

2.1. PROCESS INDICATORS

These include monitoring of lab procedures at various stages (e.g., first test at admission and periodically thereafter, and bi-weekly physician examination). The findings of the audit are summarized in the following table:

Table 7

MONITORING OF LABORATORY PROCESSES AT VARIOUS STAGES OF HD DURING 2014-15 AND 2017

Process Assessment		Target	2014	2015	2017
Lab test results at admission and quarterly thereafter	Complete blood count	> 80%		41.21	55.29
	BUN			43.64	57.93
	Creatinine			40.91	58.76
	Electrolyte			38.85	56.33
	Calcium			37.90	57.16
	Phosphate			36.94	56.61
	Albumin			33.55	52.29
	Kt/V*			27.89	54.52
	URR**			25.83	58.83
Lab test results at admission and semi-annually thereafter	Iron study	> 80%		18.62	56.54
	iPTH			30.61	52.23
	HBsAg			25.46	51.32
	HBsAb			25.24	53.69
	Anti-HCV			25.61	58.14
Lab test results at admission at least once a year	CXR	> 80%		18.69	56.26
	EKG			19.43	57.30
	Lipid profile			23.62	54.80
	Liver function test			36.57	54.45
	Anti-HIV			49.74	53.82

*Kt/V: K – dialyzer clearance of urea; t – dialysis time; V – volume of distribution of urea, approximately equal to patient's total body water
**Urea reduction ratio is the level of urea pre- and post-dialysis expressed as a percent
Source: Bureau of Claims and Medical Audit, NHSO

The audit found that labs did not reach the target for testing. In 2017, lab testing was 50-60% of the target. A problem was that the service facilities felt that the cost of the lab tests were a capital cost of the outlet. Thus, they did not always order the test. In other cases, the patient was referred back to their home service outlet for testing, and there was no follow-up or record of the testing or results. In some cases, the patient was told to cover the cost of testing and that meant that testing was not always up to standard.

2.2 QUALITY INDICATORS

These indicators reflect results of the treatment of the patient and include monitoring anemia, adequacy of HD, preparation of blood vials used in HD, incorrect metabolic treatment of mineral levels and the bone, nutritional status, etc. The summary of audit findings are shown in the following table:

Table 8

AUDIT OF QUALITY OF HD SERVICE DURING 2014-15 AND 2017

Quality Assessment of:		Target	2014	2015	2017
Anemia	Hb < 10 g/dl	< 20%		64.25	66.53
	Hb > 11.5 g/dl			39.55	14.71
	Serum ferritin < 100 g/dl			48.75	15.76
Adequacy of HD	URR < 65%	< 20%		27.76	11.51
	Kt/V < 1.2 (HD 3 times /week)			26.76	7.38
	Kt/V < 1.2 (HD 3 times /week)			68.73	43.09
Preparation of blood vials	AVF or AVG or Permcath	> 70%		92.49	98.29
	Temporary venous catheter >90 days	< 20%		16.30	6.24
Monitoring and treatment of metabolic disorders of minerals and the bone	Serum calcium > 10.2 mg/DL	< 20%		25.10	11.99
	Serum phosphorus> 5.0 mg/DL			43.34	41.14
	iPTH> 9 times normal			54.00	59.50
Nutritional status	Serum albumin <3.5 mg/DL	< 20%		31.88	16.64

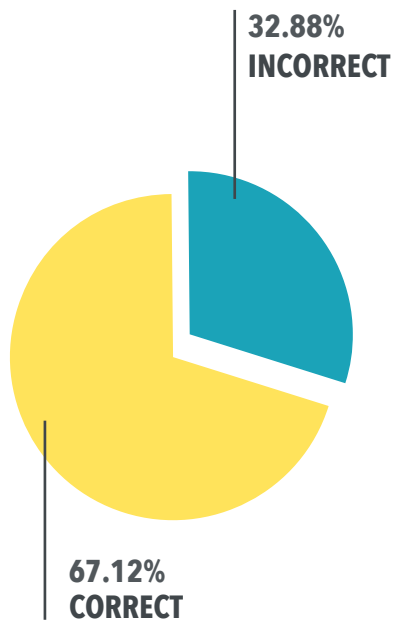
Source: Bureau of Claims and Medical Audit, NHSO

The audit found that the labs are performing under target. For example, Hemoglobin, Phosphorus, iPTH testing did not meet the targets. The reason for this is that many facilities did not see the necessity of performing the tests or certain treatments that would require the tests. The findings for Hb<10 gm/dl show that there were values of 64.25% and 66.53% in 2015 and 2017, respectively. The expert on the audit team observed that the patient might have another condition that caused the paleness or appearance of anemia. However, without a screening and diagnosis for those other conditions, it is not possible to conclude that the EPO did not have the desired effect, resulting in high levels of anemia. In addition, in 2017, a repeat audit looked at the number of HD treatments with EPO therapy, laboratory performance, and other therapies which reflect quality of care. That audit found that the correct procedures were being followed in over 75% of audited sites.

SUMMARY
OF THE BILLING AUDIT FOR PERCUTANEOUS CORONARY INTERVENTION (PCI) IN 2017

The Billing Audit for PCI in 2017 was conducted by the NHSO Office of Audits. The audit looked specifically at the functioning of related equipment for PCI in two facilities in each of 13 zonal areas of the NHSO (i.e., 36 facilities). The audit also reviewed 2,710 medical records related to PCI and with equipment codes of #4702 (i.e., Vascular Closure Device) in association with high billing costs of equipment. Of the 12,397 equipment items audited, a total of 8,231 items (two-thirds) were reimbursed according to NHSO criteria, while the remaining 4,262 were incorrectly processed (see figure below).

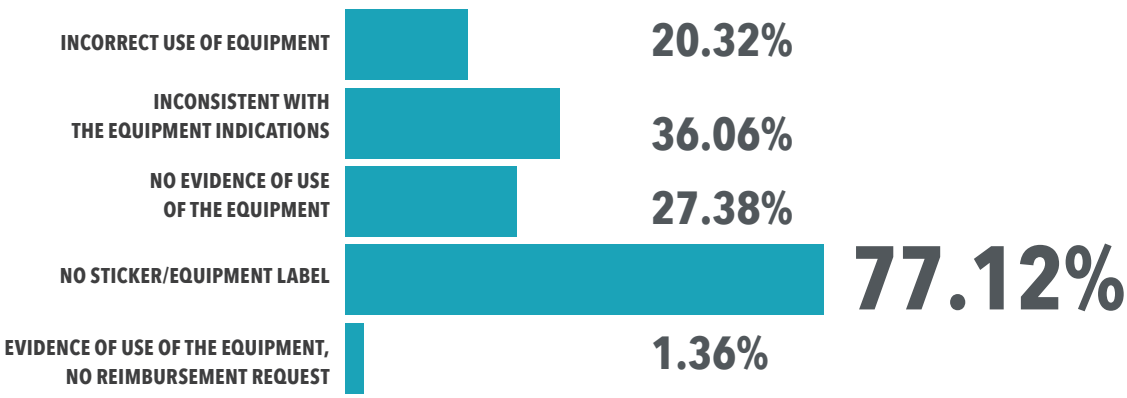
Figure 15
PERCENT RESULTS OF THE BILLING AUDIT OF EQUIPMENT FOR PCI IN 2017



Source: Bureau of Claims and Medical Audit, NHSO

Figure 16

RESULTS OF THE AUDIT OF INACCURATE BILLING FOR PCI BY NHSO CRITERION IN 2017



Source: Bureau of Claims and Medical Audit, NHSO

The reasons for the incorrect reimbursement are that no sticker/equipment label was found, or there was no evidence of use of the equipment. In 2017, there were reimbursement requests valued at over 58 million baht. After the audit, this was reduced to about 44 million baht, requiring a remittance to the NHSO of about 14 million baht (23.6%).

SUMMARY

OF BILLING AUDIT FOR ACCIDENT AND EMERGENCY CASES INVOLVING CROSS-PROVINCE CARE

To improve the national health security system, the NHSO promotes convenient and efficient access of the population to public health services. The NHSO also attempts to control quality of these services. People around the country register with their local health outlet to be eligible for coverage under the NHSO system. This helps to promote comparable caseload burdens for service facilities, and helps those facilities to plan for expenses in each coming year. Similarly, the NHSO allocates budget for projected outpatient services in the form of a capitation to participating facilities, based on the number of people registered to that outlet. Other things being equal, people who need subsidized care or treatment must first seek treatment at their local service outlet. An exception to this was specified in the 2002 National Health Security Act, Article 7 which stipulates: *"…If there is a qualifying event, accident, or medical emergency, the patient may seek care outside their assigned service area as convenient or necessary, and the attending service site may obtain reimbursement for services rendered…"*

There was a rather high rate of inaccuracies in the billing and reimbursement actions, approximately

80%

NHSO has issued compensation guidelines for this "out-of-network" service provision in cases of accidents or emergencies when treating patients whose home is in another province. That compensation is in addition to the capitation, and the outlet must provide services in accordance with the specified SOPs for that situation. The NHSO conducts separate audits of cross-provincial reimbursements in order to help facilities receive reimbursement in accordance with regulations. The Billing Audit for this set of procedures found that there was a rather high rate of inaccuracies in the billing and reimbursement actions (approximately 80%).

Table 9

RESULTS OF BILLING AUDIT OF ACCIDENT/EMERGENCY PATIENTS ACROSS PROVINCES: 2016-17

Data	2016					2017				
	Total number	Evidence found		No evidence		Total number	Evidence found		No evidence	
		Number of	%	Number of	%		Number of	%	Number of	%
Number of medical records (issues)	6,000	5,953	99.22	47	0.78	7,279	6,856	94.19	423	5.81
Services (times /Visit)	7,419	7,290	98.27	129	1.73	8,351	7,868	94.22	483	5.78
Services	times (Visit)			%		times (Visit)			%	
1. Reimbursed before the audit	7,419			100.00		8,351			100.00	
2. Correct reimbursement	1,527			20.58		1,727			20.68	
3. Incorrect reimbursement										
• Over-claim (request remittance)	5,582			75.24		6,267			75.05	
• Under-claim	310			4.18		357			4.27	

RESULTS
OF IMPLEMENTATION

The NHSO audit system is a system of inspections with the objective to monitor and improve quality of services, data recording, and fund management. The audits help improve services at the outlet and of the administrators at all level. Overall, the participating service facilities and management in the NHSO network are not fully complying with NHSO standards. The audit provides guidance on how to achieve full compliance and boost quality. The service facilities and committee members can provide recommendations to the NHSO on how to improve the system of reimbursements or the criteria for evaluation. For example, service facilities would like to be informed in advance of the system and criteria for the audit, or whenever there is an adjustment to the criteria for correct or incorrect procedures. The NHSO grading system is now more systematic and efficient. However, there is still a need to improve the process of sampling of some groups to achieve optimal coverage of the audits. Limitations of staff and resources for audits is a constraint to fuller coverage. The audits need to be frequent enough to keep up with changing circumstances and changes in the context of services.

PROVIDERS GRADING

Since 2014, the NHSO audit system has been complete and fully operational across all components. This system allows for an audit of medical records to analyze trends and spot problems. The system monitors reimbursement of payments of the participating service facilities. With this data in hand, the NHSO can consolidate the data into summary measures of quality by scoring or grading service facilities. This helps in quality control and monitoring the accuracy and completeness of the reimbursement system. This also helps to fairly and equally allocate budget for inpatients using the DRG system. The data for grading the facilities comes from the Coding Audit of the DRGs in each Fiscal Year. The calculation for the grading of service outlet uses four groups of data:

1. SUM SCORE

This is a compilation of data from the audit of medical records. It includes 8 variables with scores of 1 to 3 points, which are adjusted each Fiscal Year. The scores are summed to produce a mean (X) and standard deviation (SD);

Variable		1	2	3
Percent of medical records that are correct	+	X-SD	X±SD	X+SD
Percent of medical records impact on the RW value	-	X+SD	X±SD	X-SD
Percent of correct disease and surgery summaries (SA0)	+	X-SD	X±SD	X+SD
Percent of excess disease summaries without evidence (SA2D)	-	X+SD	X±SD	X-SD
Percent with correct disease codes (CA0)	+	X-SD	X±SD	X+SD
Percent with excess disease codes without evidence (CA2D)	-	X+SD	X±SD	X-SD
Number of times there are changes in the relative weight unit	-	X+SD	X±SD	X-SD
Percent of change in relative weight units	-	X+SD	X±SD	X-SD

2. SELECT

Select: Percent of change in the Adj. RW which is higher than the mean of the results of the audit each year;

3. SELECT 2

Select 2: Number of changes in Adj. RW higher than the mean of the results of the audit each year;

4. CA2D

Service facilities with results of CA2D higher than the mean of the results of the audit each year.

After obtaining the value in each group, the results are used to calculate the score by comparison with the mean (see table below):

	0	1
Sum Score of total points	**> Mean**	**< Mean**
Select Percent of change in Adj. RW	**< Mean**	**>Mean**
Select 2 Number of changes in Adj. RW	**< Mean**	**>Mean**
CA2D of service facilities with results of CA2D inspections	**< Mean**	**>Mean**

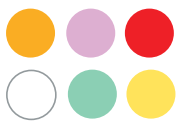
A service outlet with a score of 0 is considered good, while a score of 4 is not good. Color coding is used to improve ease of viewing the findings, as follows:

- Red denotes a score of 4 in the current year or an increase to 3 or 4 from the previous year
- Pink denotes an increase to a score of 1 or 2
- Orange denotes an unchanged score (except if the score is 4)
- Yellow denotes a decrease in score to 1 or 2
- Green denotes a decrease in score to 0
- White denotes an unchanged score of 0 (no need to audit)

THE GRADES OF THE PREVIOUS YEAR ARE COMPARED ACCORDING TO THE FOLLOWING CRITERIA:

Score of 2016	Score of 2017					TOTAL
	0	1	2	3	4	
0	Green: a decrease in score to 0					
1		Orange: an unchanged score			Red: an increase to a score of 3 or 4	
2						
3						
4		Yellow: a decrease in score to 1 or 2				
No audit		Pink: an increase to a score of 1 or 2				
Total						

SHOWS THE SCORES FOR SERVICE FACILITIES COMPARED WITH THE PREVIOUS YEAR



GRADING SYSTEM

CRITERIA FOR EVALUATION

GRADING*	SUM SCORES < MEAN
SELECT	PERCENT OF CHANGE Adj. RW > MEAN
SELECT 2	NUMBER OF CHANGE Adj. RW > MEAN
CA2D	SERVICE FACILITIES WITH RESULTS CA2D >MEAN

GRADING	SELECT	SELECT 2	CA2D
1 SCORE	1 SCORE	1 SCORE	1 SCORE

0 POINT >> EXCELLENT ---------- POOR<< 4 POINTS

Figure 17

COMPARISON OF SCORES AND RANKING OF SERVICE FACILITIES FROM SUMMARY OF DIAGNOSIS AND DISEASE CODING ACCORDING TO STANDARD IN 2015 - 17

The ranking of service facilities from 2015-17 changed from 514 facilities to 364 to 773 facilities, respectively. The trend indicates improved disease coding. Facilities with severe levels of errors (red) declined from 40.82% to 35.16% to 11.24%, respectively. Those with a low level of errors (yellow) increased from 12.89% to 21.98% to 39.77%, respectively.

COMPARISON OF SCORES AND RANKING OF SERVICE FACILITIES FROM SUMMARY OF DIAGNOSIS AND DISEASE CODING ACCORDING TO STANDARD IN 2015

Level of Score (Grade)		Fiscal Year 2015					Total
		0	1	2	3	4	
Fiscal Year 2014	0	73	74	72	49	21	289
	1	39	39	35	24	23	160
	2	0	2	10	14	5	31
	3	1	3	2	8	11	25
	4	1	0	1	1	1	4
No audit		0	0	0	2	3	5
Total		114	118	120	98	64	514
Number by color level***		114	66	123	209		512
%***		22.27	12.89	24.02	40.82		

COMPARISON OF SCORES AND RANKING OF SERVICE FACILITIES FROM SUMMARY OF DIAGNOSIS AND DISEASE CODING ACCORDING TO STANDARD IN 2016

Level of Score (Grade)		Fiscal Year 2016					รวม
		0	1	2	3	4	
Fiscal Year 2015	1	19	34	21	10	1	85
	2	16	25	44	26	7	118
	3	8	12	19	34	25	98
	4	1	2	8	14	38	63
Total		44	73	92	84	71	364
Number by color level***		44	80	112	128		364
%***		12.09	21.98	30.77	35.16		

COMPARISON OF SCORES AND RANKING OF SERVICE FACILITIES FROM SUMMARY OF DIAGNOSIS AND DISEASE CODING ACCORDING TO STANDARD IN 2017

Level of Score (Grade)		Fiscal Year 2017					รวม
		0	1	2	3	4	
Fiscal Year 2016	0	9	16	7	1	0	33
	1	18	27	13	12	0	70
	2	19	33	29	7	2	90
	3	13	18	30	14	8	83
	4	5	11	18	28	9	71
No audit		77	153	148	42	6	426
Total		141	258	245	104	25	773
Number by color level***		64	138	70	36	39	347
%***		18.44	39.77	20.17	10.37	11.24	

*** Not including groups not audited

SUMMARY
OF IMPLEMENTATION

The NHSO audit system is a system of inspections with the objective to monitor and improve quality of services, data recording, and fund management. The audits help improve services at the outlet and of the administrators at all level. Overall, the participating service facilities and management in the NHSO network are not fully complying with NHSO standards. The audit provides guidance on how to achieve full compliance and boost quality. The service facilities and committee members can provide recommendations to the NHSO on how to improve the system of reimbursements or the criteria for evaluation. For example, service facilities would like to be informed in advance of the system and criteria for the audit, or whenever there is an adjustment to the criteria for correct or incorrect procedures. The NHSO grading system is now more systematic and efficient. However, there is still a need to improve the process of sampling of some groups to achieve optimal coverage of the audits. Limitation of staff and resources for audits is a constraint to fuller coverage. The audits need to be frequent enough to keep up with changing circumstances and changes in the context of services.

CASE STUDIES

CASE STUDIES OF AUDITING EVIDENCE FOR REIMBURSEMENT CLAIMS FOR HEALTH SERVICES

In order to highlight the system of audits of background documentation and evidence of expenditures for health services, the following are both positive and negative case studies. The information is based on interviews with relevant staff.

CASE STUDY H1

REPORTING RESULTS OF MEDICAL RECORDS WHICH ARE NOT CORRECT ACCORDING TO THE CRITERIA

SOURCE

Summary of diagnosis, assigning a disease code and operations which are incorrect in Hospital H1 which had the highest volume of over-claims requiring remittance.

BACKGROUND

In 2012, an analysis of the casemix index (CMI) and mean relative weights of H1 by a routine zonal NHSO audit found an increase from 1.3 to 2.3 in the CMI over a three-year period in which there was no increase in clinical services offered, and was at a significantly higher level than other facilities of the same type and level.

AUDIT PROCESS

The abnormal increase in the CMI raised an alarm which triggered a closer inspection of medical records. That inspection found that there was an over reporting in 2,152 documents, or a relative weight of over reporting by 44%, equivalent to 2,387,015 baht. The NHSO then issued a letter to H1 with a warning that there would need to be a remittance of the over-claims for inpatient care. The audit found errors in the disease codes that were entered into the records, or codes that had no supporting documentation. The errors were for such conditions as anemia, thrombocytopenia, hypoxia, and hyperglycemia. There was also misclassification of diagnosis of the principal disease and co-disease, and that inflates the relative weighting by a large margin.

RESULTS OF IMPLEMENTATION

The 2,152 medical records with over-reporting were returned to H1 to make the needed corrections. However, H1 only corrected 420 records. That reduced the relative weight of over-reports by 29%, and there were changes made that still did not meet the standard criteria. In 2013, the NHSO Audit Office found 1,732 inpatient medical records that still had not been corrected. The relative weight of over-reporting was now at 52% or 16,618,079 baht. As a result, the NHSO presented the findings to the Fund Management Board which resolved that the issue be presented to the full NHSO Board for consideration and amendment of the remittance requirement.

Figure 18
RESULTS OF THE SUMMARY AUDIT OF DISEASE AND SURGERY RECORDS IN HOSPITAL H1 IN 2012-13

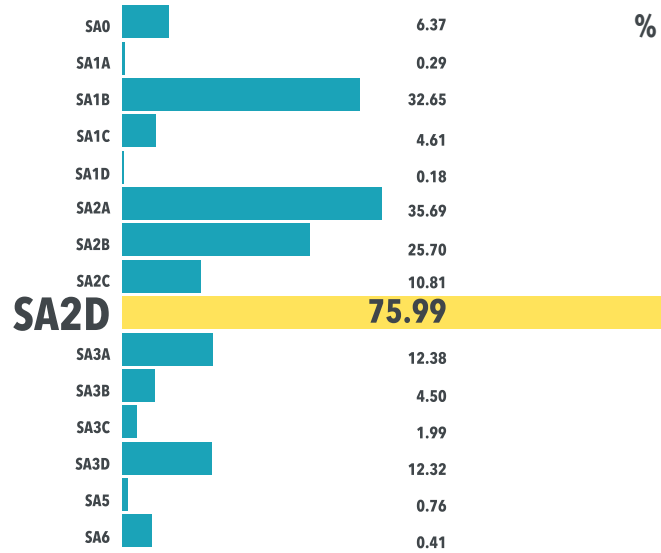
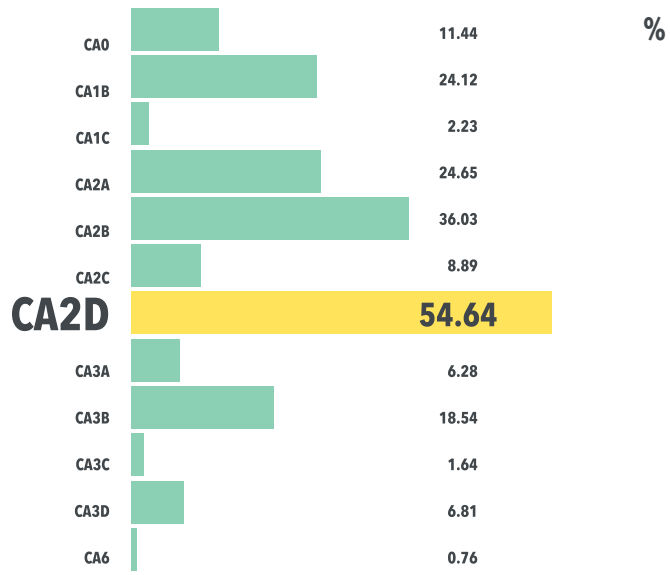


Figure 19
RESULTS OF THE AUDIT OF DISEASE CODE AND SURGERY OF HOSPITAL H1 IN 2012-2013



On December 23, 2013, the NHSO Board resolved to reduce the amount of reimbursable claims by H1 because the evidence (or lack thereof) in the medical records did not support the original claims. In all, H1 has requested reimbursement that was 7.5 times over the legitimate amount (about 91 million baht). Hospital H1 submitted an appeal of the audit findings, arguing that the hospital did not have any intention of making over-claims and that these errors were accidents in recording and reporting due to carelessness, not fraudulent intent. The hospital said it had made the corrections to the records and had tightened up management of records and reporting.

However, the Subcommittee on Deductions to Claims did not accept the appeal and further imposed a fine on the hospital for its transgressions. Nevertheless, Hospital H1 submitted a second appeal to the Legal Affairs Bureau of the NHSO. The appeal was referred to the Council of State for consideration. The Council of State ruled that the NHSO did not have the authority to levy a fine on the hospital but it did have the right to receive remittance for the excess amount of budget it reimbursed the hospital for (in the amount of 16,618,079 baht). The NHSO issued two requests to the MOPH, one to claim the remittance and one to issue a reprimand of the hospital. The Legal Affairs Division of the MOPH replied that they could not honor the former request while the second request was duly recorded.

LESSONS LEARNED

The central government lacks adequate authority to demand remittance for over-claims. Thus, there is not enough incentive for the service outlet to strictly adhere to coding of disease and surgery in the medical records so that they meet the standards. Remittances can only be obtained from the 1% of medical records that are sampled, and that means there are inadequate controls of the medical record data and reporting. This could lead to administrative policies to increase coding which impacts on the relative weighting

THE AUDIT SYSTEM DOES NOT HAVE THE OBJECTIVE TO IMPOSE PUNISHMENT OR FIND FAULT

Instead, the audit gives the service facilities an opportunity to learn how to improve their recording and reporting. If errors are detected in the coding of disease or surgery, then the service outlet is alerted

about the errors and the need to rectify the problem. However, if a given hospital repeats these errors despite the warnings, then the issue is referred to the Committee on Claim Deductions for review. That is because repeat offense by a hospital indicates intent to commit a fraudulent practice. The Committee needs to determine intent.

There need to be more controls in the audit system to improve efficiency: There needs to be consideration of a variety of factors and on-going monitoring. For example, the system of grading to assess quality of summaries and assignment of the disease codes of the hospital needs to be reviewed each year across the eight indicators – for both negative and positive practices and trends. That would help improve quality control. If compliance with the standard criteria is low (i.e., red color) then there would have to be closer inspection of that outlet – a form of selective supervision. If a facility is red coded for three years running, then that should trigger an audit by the three supporting funds: The National Health Security Fund, the Social Security Fund for Medical Care, and the government Civil Servants Medical Care Fund. Reimbursements should be paced so that clear adjustments are made to the quality of summaries of the coding for disease and surgery. That way, a service outlet would not be reimbursed for claims until the records are corrected and the claims are adjusted. The system of audit controls would be rather tight and have the ability to detect problems in a timely fashion.

CASE STUDY H2

REPORTING RESULTS OF MEDICAL RECORDS WHICH DO NOT MEET THE STANDARD CRITERIA

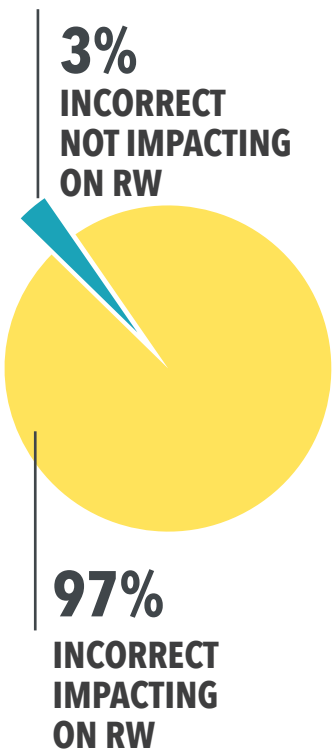
SOURCE

Erroneous summary of diagnosis and assignment of codes for disease and surgery in Hospital H2

AUDIT PROCESS

From the audit of medical records by the zonal NHSO, it was found that H2 had a high level of errors in the summary of the coding for disease and surgery starting in 2014. Thus, it was resolved by the three supporting health funds to conduct an on-site visit to H2 during August 2-3, 2016. The inspection flagged 100 cases of medical records for errors, with impact on relative weight of 97 records and no impact of three records.

Figure 20
RESULTS OF THE AUDIT OF MEDICAL RECORDS BY TYPE OF ERROR IN HOSPITAL H2



Analysis of factors behind the errors revealed that only 2% of physician summaries of medical records was correct, and 6% of coding of principal disease was incorrect. The principal disease diagnosis was inconsistent with the symptoms which required admission to H2. Also, there was insufficient evidence for diagnosis of co-disease, or lack of physician diagnosis in 91% of cases. The coding of disease and surgery by the medical statistician was correct in only 39% of cases submitted for reimbursement. One-fourth of cases were attributed to personnel not entering the disease code from the physician summary, incorrect co-disease coding (25%), and adding a co-disease code which was not in the physician summary (21%).

The value of the relative weight of the audited medical records for 100 cases was 219.4106. Following the audit, the relative weight declined to only 75.5278, or a difference of 143.8828. In other words, H2 submitted over-claims for services rendered by 65.6%, or the monetary equivalent of 1,151,062 baht.

RESULTS OF IMPLEMENTATION

After the audit, the audit team of the Comptroller-General and the NHSO resolved the following:

- Hospital H2 is to review their medical records and correct errors made during FY 2015-16 by September 30, 2016. During that period, the Comptroller General and the NHSO will delay issuing reimbursements for services claimed.
- In making those corrections, H2 must strictly adhere to standards for summaries and coding of disease and surgery, and other related professional standards, and the Fund Auditor will consider the rectified data.
- Both support funds will inform their superiors and top managers of the MOPH about the errors found by the audit, especially those cases in which there were problems of quality care and erroneous billing.

Hospital H2 made the corrections to the medical records and remitted funds for the over-claims. At present, H2 summaries of diagnosis and coding for disease and surgery have improved: In 2017, its grade had improved to yellow.

AT PRESENT, H2 SUMMARIES OF DIAGNOSIS AND CODING FOR DISEASE AND SURGERY HAVE IMPROVED: IN 2017, ITS GRADE HAD IMPROVED TO YELLOW.

LESSONS LEARNED

GRADING IN 2017

The grading system is more efficient in helping to control reporting. Coverage is rather good and there is regular monitoring, e.g., for the facilities graded as yellow or red.

The system of sample audits has been upgraded so that it is more timely. The conditions for sampling medical records have been increased. For example, a case of an irregularity is inspected for its potential impact on RW. Then, the codes from the database are examined to see if the summary and disease code meet the standard or not.

CASE STUDY H3

RECODING FACTUAL DATA IN CLAIMS FOR REIMBURSEMENT FOR HEALTH PROMOTION AND DISEASE PREVENTION ACTIVITIES

SOURCE

Reimbursement for dispensing oral contraceptives (OC) by Hosptial H3 was excessive in 2013

AUDIT PROCESS

The zonal NHSO has audited the claims and reimbursements for health promotion since 2011 to the present. The audits review the data in the BPPDS program which service facilities use to record services for each case as a basis for requesting reimbursements. In FY 2013, it was found that H3 requested reimbursement for OC dispensing in the amount of 42 million baht. Thus, the zonal office of the NHSO requested permission to conduct an audit of H3 records for 'health promotion and disease prevention' during the period of 2011-12. The audit was conducted on June 13, 2013 with the following results:

- Hospital H3 reported that it sent OCs to worksites or human resources departments, and did not know who the service recipients were. H3 simply used the same list of worksites or HR departments for re-issuing the OCs. However, upon inspection, many of the workers who were reported to receive the OCs were in other provinces.
- The documentary evidence or records of dispensing the OCs by personnel outside the hospital were not credible. There was no record of the date the OCs were dispensed, and the signature of the dispenser was the same in all cases, implying that only one person was involved.
- There was no evidence of support for the OC supply provided to the worksites in accordance with the name of the person entered into the BPPDS.
- The amount of OCs procured was not consistent with the number of eligible recipients as recorded.
- The OC services were mixed in with ante-natal care services.
- There were records of a large number of women over age 49 receiving OCs.
- There were reports of OC dispensing in the hospital only.

The zonal NHSO reported the findings of the audit to the H3 director who was instructed to suspend provision of family planning services for the time being.

RESULTS OF IMPLEMENTATION

- Hospital H3 submitted additional documentation on the health promotion activities of the hospital. The NHSO appointed a task force to review the data on reimbursements for 'health promotion and disease prevention' of H3. That review did not find supporting documentation that would substantiate that H3 actually provided OCs to legitimate clients, or according to professional standards. There was no evidence that the checklist for prescribing OCs was used, or that evidence of pregnancy was ruled out. There was no evidence of a physical exam being performed, a weighing of the clients or measurement of vital signs. There were records of dispensing OCs to women under age 15 and over age 49, and to pregnant women, without any justification.
- The NHSO requested remittance from H3 in the amount of 20,694,360 baht, and slowed down reimbursements for 'health promotion and disease prevention' claims by the hospital.
- Hospital H3 appealed the findings of the audit to the Subcommittee for Claim Deductions.
- The Subcommittee resolved that the appeal be elevated to the Administrative Court.
- The NHSO entered into direct negotiations with the H3 director who agreed to withdraw the appeal and refund the NHSO for the overbilling.

RECALL PAYMENT

20,694,360 BAHT

LESSONS LEARNED

This case helped to stimulate improvements in the audit of claims for 'health promotion and disease prevention services.' The zonal NHSO branch offices now conduct annual audits by type of service category, and there are clearer criteria for detecting irregularities (e.g., women over age 49 years receiving OCs, etc.).

CASE STUDY H4

CREATING A SYSTEM FOR CORRECT AND ACCURATE SUMMARY DIAGNOSIS AND CODING OF DISEASE AND SURGERY ACCORDING TO THE STANDARD CRITERIA

SOURCE

Hospital H4: this hospital accounted for losses of service fees due to incomplete summary and entry of disease codes, and late reporting. This case help lead to improvements in control of standards in summaries and entering disease codes in the hospital setting.

STEPS IN IMPLEMENTATION

The report of relative weights showed that H4 had a RW under the standard level when compared with other hospitals of its type and level in the system. The chief nurse of the Health Insurance Section tried to identify the source of the problem. The nurse found that there was incomplete summary diagnosis and coding of disease and surgery, and that data reporting was tardy. As a result, the nurse developed a system to rectify these deficiencies, as follows:

- The responsible personnel were sent for training at the NHSO and Office of Strategy and Planning of the MOPH
- A medical committee was appointed with specialists as members, and terms of six months. The role of the committee is to review the summary diagnosis and entry of codes for disease and surgery. There is a mentoring system to provide coaching in disease coding. If problems are detected, the attending physician receives a consultation to align understanding of the proper procedures.
- There is motivation by monetary compensation: If the summary of the medical records is submitted on time, they are paid 10 baht per record. If the medical record has an Adj. RW over 4, the compensation is doubled to 20 baht per record.
- There is a system of monitoring results of implementation and recording the Adj. RW baseline before and after the monthly audit. This is compared with the input of the hospital so that the service provider and personnel see the importance.
- The hospital authority expressed the opinion that the summary diagnosis, coding of disease and surgery should be according to standard since this is important in portraying the situation of disease incidence and prevalence in the country. Also, performing up to standard increases the income for the hospital.

RESULTS OF IMPLEMENTATION

Hospital H4 has been graded at the level of green throughout the period.

- H4 is experiencing increased revenue due to the fact that its summary diagnosis and coding of disease and surgery are maintained at a standard level, and physicians are content with the compensation.
- H4 received a Claim Award from the NHSO as hospital with disease summary and coding of disease and surgery that meets the standard for Best Practice, and as a model for other hospitals in the zone.

CLAIM AWARD

FROM THE NHSO

LESSONS LEARNED

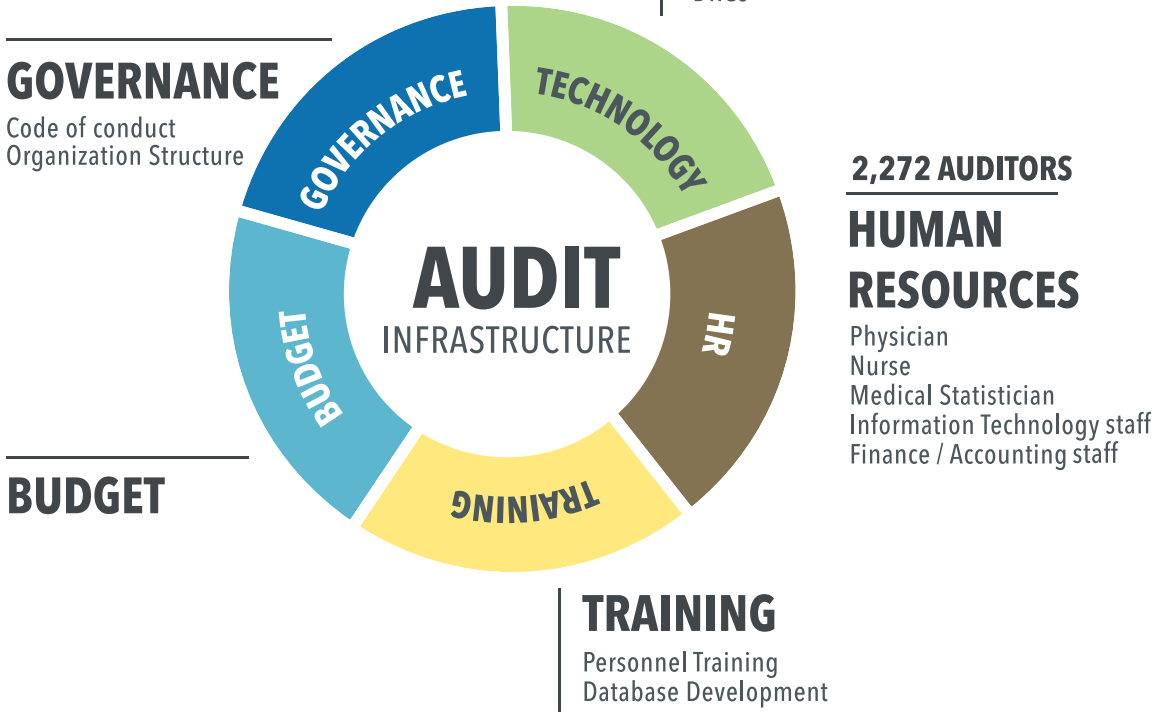
- Adjusting the viewpoint of the service facilities toward the principal aim of the summary diagnosis and coding of disease and surgery: The service facilities need to understand that the principal aim of the summary diagnosis and coding of disease and surgery is to help make the national database as accurate as possible. This helps in the analysis of the situation of disease and informs associated planning in epidemiology and projecting the cost of the health response going forward.
- Creating a system of summary diagnosis and coding of disease and surgery which meets the standard within the hospital. This will happen if there is policy from senior management, collaboration with the medical specialists, and systematic implementation. For example, there should be capacity building of the personnel through training and motivation to create and maintain the system, and monitoring of results of implementation. This can be used as a model for other service facilities.

AUDIT INFRASTRUCTURE

STRUCTURE OF THE AUDIT SYSTEM

An efficient audit system needs to be able to accommodate a diverse array of personnel, such as medical specialists, general practitioners, nurses, medical statisticians, etc. The auditors need to have the requisite knowledge and understanding of the system of disease diagnosis and coding. The audit must make use of specialized technology, and the database and information resources need to be efficient and accessible to ensure the accuracy of the inspection.

Figure 21
STRUCTURE OF THE AUDIT SYSTEM



The audits conducted by the NHSO are implemented through the Bureau of Claims and Medical Audit under the Fund Management Cluster. In 2018, the personnel in the Bureau included physicians, nurses, health statisticians, and information officers, totaling 17 persons. The Bureau has the following sections: 1) Coding Audit 2) Billing Audit 3) Quality Audit 4) Monitoring and Evaluation and 5) Management (see figures 22 and 23). Due to the limited number of personnel and the large number of medical records that need to be audited each year, the Bureau has tried to improve the structure and systems, and offers training in programs and database management. The goal is an efficient system of audits whose findings are representative of the situation of medical records of the whole country.

Figure 22

THE DIVISIONS IN BCMA

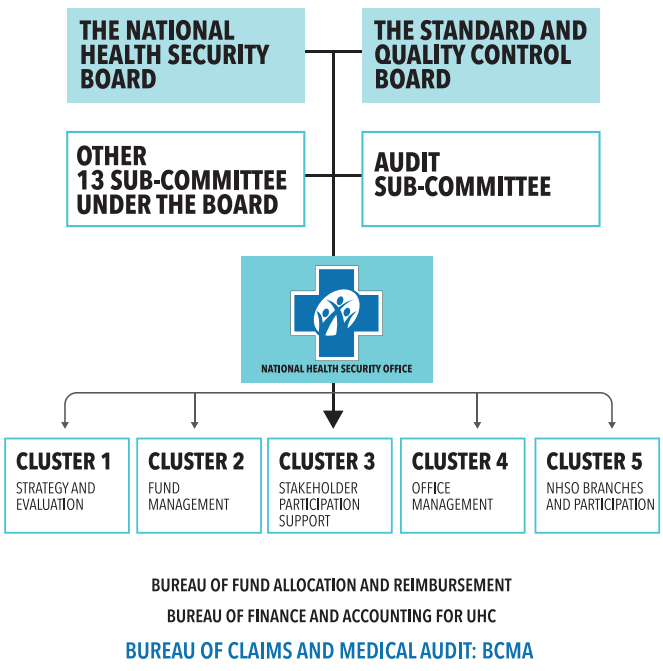
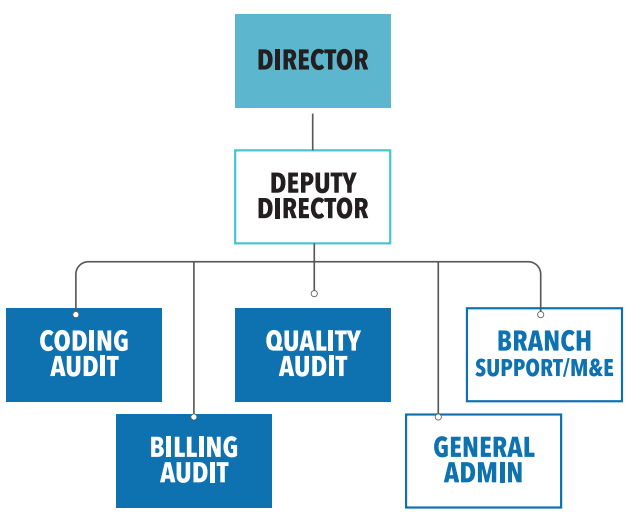


Figure 23

THE BCMA ORGANIZATION STRUCTURE

2 EXECUTIVES (DOCTORS)
14 OFFICERS (NURSES, PUBLIC HEALTH, IT
1 SUBCONTRACTED STAFF



PERSONNEL
TRAINING
HUMAN RESOURCES DEVELOPMENT

TRAINING CURRICULUM ON AUDITING MEDICAL RECORDS

Initially, NHSO audits of medical records of inpatients by the NHSO was conducted by a team led by Dr. Pradit Wonkanaratanakul, and three other members including Matana Natananan, Rungjit Lilangamwongsa, and Patra Anekwithyakit. The team would take a national sample of medical records and conduct on-site audits of about 1,000 records per year. In 2005, the NHSO set up the first branch office in Khon Kaen, with responsibility for conducting audits in the 19 provinces of the Northeast region. The NHSO also held training in auditing medical records, and the first training had 250 physicians as trainees. The content of the training was based on the practical experience of Dr. Pradit and his team. Shortcomings of the first round of training in auditing medical records can be summarized as follows:

1. At the time of the first training, there was no standard handbook to guide instruction
2. There was no system or computer program to help in the auditing of the medical records
3. The NHSO still had no SOPs for the audit of medical records

SHORTCOMINGS OF THE FIRST ROUND OF TRAINING IN AUDITING MEDICAL RECORDS

No standard handbook to guide instruction

No system or computer program to help in the auditing of the medical records

No SOPs for the audit of medical records

To address some of these shortcomings, one staff member of the Khon Kaen zone office (Natapong Anuwatyanyong) compiled the training curriculum content into a handbook as guidelines for physicians to apply by themselves in the field. Later, Natapong transferred to NHSO HQ and drafted a systematic set of procedures for use of budget in the audit of medical records. The handbook and these guidelines enabled the NHSO to decentralize auditing of medical records to the entire network of zonal offices by 2007.

During 2006-11, the number of qualified auditors of medical records had increased significantly. The NHSO had the goal to eventually be able to audit all the facilities with claims and reimbursements for services provided to inpatients according to the DRG system. During that time, the training curriculum had two main components: Summary and disease coding according to the ICD-10 system. The key resource person for the training at that time was Dr. Chaiyot Prasanwong, while Dr. Pradit still had responsibility for overseeing the general system of medical records audits. As new information was gained from the field audits, this information was incorporated into the training curriculum to make the content as fresh and relevant as possible. As more physicians were trained as auditors, they helped to provide a diverse perspective for the NHSO on problems and solutions. Accordingly, the NHSO compiled these perspectives into an additional training module on "Guidelines for Medical Document Auditing (1st Edition, 2010)." These Guidelines helped to standardize the methods and practices of the auditors around the country. The 2nd and 3rd editions of the Guidelines were published in 2014 and 2016 under the title "Standard Operating Procedures in the Audit of Claims Documentation for Health Services Rendered." This also included "Standard Coding Guidelines" based on DRG version 5.

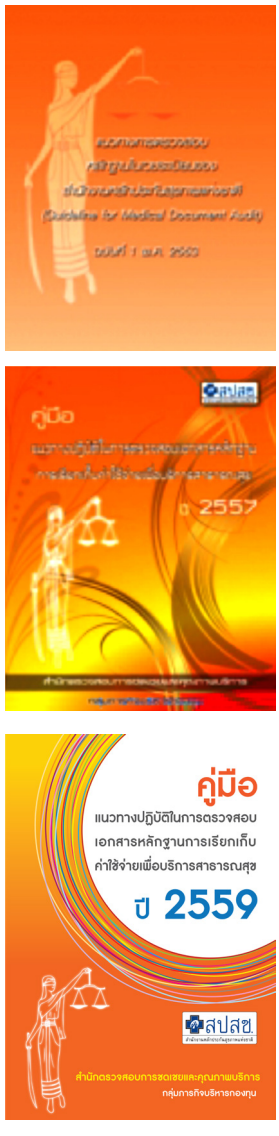


Figure 24
SOPS IN THE AUDIT OF CLAIMS DOCUMENTATION FOR HEALTH SERVICES RENDERED: 2010, 2014 AND 2016

AUDITOR TRAINING PROGRAM

CURRICULUM FOR TRAINING AUDITORS OF MEDICAL RECORDS: 2012

1

BASIC KNOWLEDGE OF ICD10 AND ICD-9-CM

Basic knowledge about the background, concepts, and criteria for classifying codes of clinical procedures and methods; how to use the Disease Code Handbook; the Codes for Surgery and Operations; codes for different organs or systems of bodily function; laboratory tests; injury, toxicity, and results of follow-up of external events and causes of illness

2

USE OF THE SOPS HANDBOOK ON STANDARDS OF DISEASE CODING AND GUIDELINES FOR AUDITING THE SUPPORTING DOCUMENTATION AND INFORMATION IN THE MEDICAL RECORDS

Concepts, criteria and methods of using the Handbook

3

ANALYSIS OF THE DATABASE AS PART OF THE AUDIT OF MEDICAL RECORDS

Knowledge about analysis of inpatient data in terms of the relative weight of the number of inpatient days; relative weight and cost; relationship of the disease and surgery; grouping co-disease by diagnostic criteria in ways that are inconsistent with the primary disease and surgery; summary of disease and coding which exceeds the criteria

4

SUMMARY ASSESSMENT (SA)

Knowledge about accurate assessment in the summary of the disease and surgery by comparing data from the discharge summary and results of the audit

5

CODING OF DISEASE AND SURGERY: CODE ASSESSMENT (CA)

Knowledge related to the accuracy of the coding of disease and surgery by comparing data from the discharge summary data with services of the service outlet which is submitting a claim for reimbursement from the NHSO

6

GUIDELINES AND STEPS IN THE AUDIT OF MEDICAL RECORDS

Knowledge about the process of the audit; assessment of data from the discharge summary; and audit of supporting documentation in the medical records

7

ETHICS FOR THE AUDITOR OF MEDICAL RECORDS

Knowledge about ethics and principles of the professional auditor; maintaining confidentiality of the patient and service outlet that are the subject of an audit; maintenance of honesty and transparency in all facets of the audit; having no bias or prejudice which might adversely affect the service outlet being audited

8

PRACTICAL TRAINING AND PRESENTING RESULTS OF THE AUDIT OF MEDICAL RECORDS (CASE STUDY)

Applying knowledge from the content of basic information on the ICD-10 and ICD-9-CM; use of the Handbook on standards in disease coding; conditions for the audit of medical records; disease and surgery SA; assessment of disease and surgery coding; guidelines and steps in the audit of medical records; presenting audit findings

DEVELOPMENT OF THE AUDITORS OF MEDICAL RECORDS

The auditor of medical records plays an important role in maintaining the integrity of the health system and is a crucial factor in helping to improve the 'health for all' system of Thailand's NHSO. The country has a limited amount of financial resources to subsidize essential health and medical care. Thus, the budget has to be carefully monitored to reduce or eliminate abuses and careless overcharges. Thailand uses a global budget system based on DRGs, using the sum Adj. RW of each of the participating service facilities. In such a budget system, it is especially important to control the reimbursement of inpatient care costs to maximize efficiency and fairness throughout the system.

At present, the NHSO conducts annual training of auditors in two curricula. One is a three-day training for personnel who have never been trained in auditing before. The content includes basic knowledge about DRGs, ICD-10, guidelines for summarizing medical records, and methods of auditing medical records. Trainees are given pre- and post-test assessments on knowledge acquisition. The other curriculum is a refresher training for auditors who have already completed the basic curriculum. This training covers changes in the conditions for diagnosis according to the CPG or the Royal College or Standard Coding Guidelines; a review of results of appeals; and results of re-audits of commonly-detected problem areas. Over the past decade, the NHSO has trained over 2,000 persons from around the country in auditing of medical records.

PROFESSION	MEDICAL AUDIT	BILLING AUDIT	QUALITY AUDIT	TOTAL
MDS	740	159	149	1,048
NURSES	266	172	237	675
MEDICAL STATISTICIAN	522	0	6	528
OTHER	2	0	19	21
TOTAL	1,530	331	411	2,272

TABLE 10
NUMBER OF PERSONNEL FOR AUDITING MEDICAL RECORDS BY THE ZONAL NHSO IN FISCAL YEAR 2017

The NHSO has trained

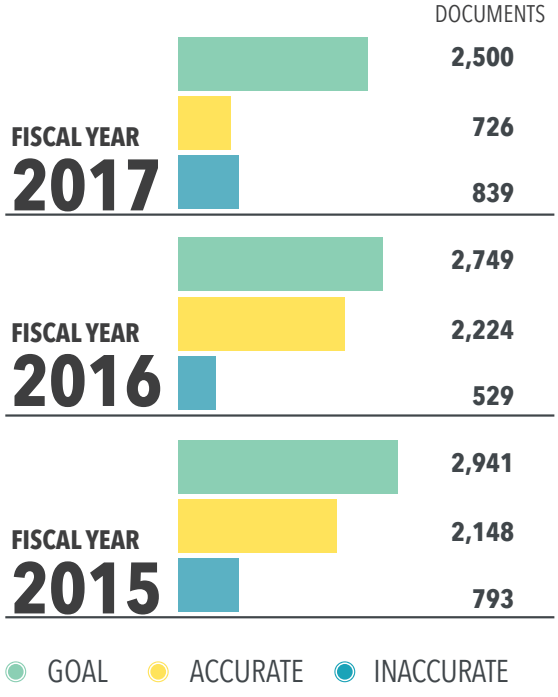
OVER 2,000 PERSONS

from around the country in auditing of medical records

The NHSO also collaborates with the Kanchanabhishek Institute of Medical and Public Health Technology to augment the knowledge of diagnosis coders from all participating hospitals. Each zonal office of the NHSO conducts one training each Fiscal Year, with a focus on accurate coding of the clinical diagnosis. In addition, the NHSO has created an internal system of auditing the auditors. This includes a quality assessment by the Committee on Audit of Medical Records (Re-audit) by expert auditors who have built up a track record of accurate and fair audits. A total of five charts per auditor per year are re-audited for internal quality control. The results of the audit of the auditors are compared with appeals by the audited service facilities to develop guidelines on improving auditor performance. Auditors are required to attend periodic refresher training. If an auditor misses two of these refresher trainings or has repeated experience of errors in audits, then that person will be relieved of his/her auditing duties.

Figure 25

RESULTS OF QUALITY ASSESSMENT OF THE AUDIT OF MEDICAL RECORDS (RE-AUDIT)



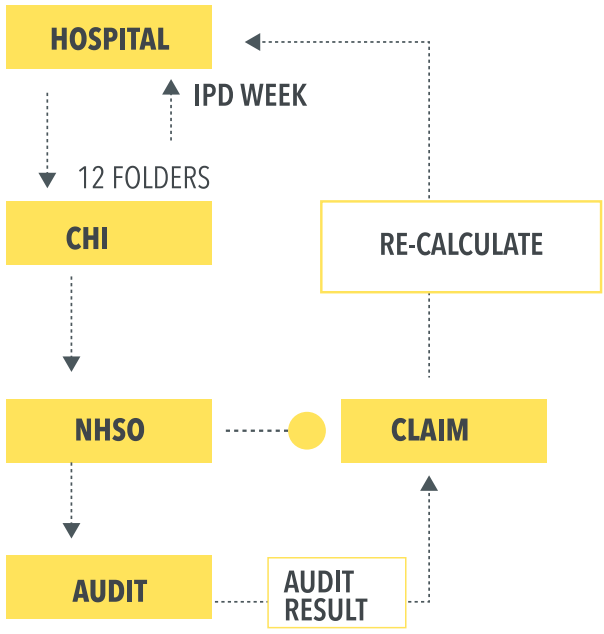
DATABASE DEVELOPMENT

DEVELOPMENT OF THE DATABASE AND INFORMATION SYSTEM

Before establishing the NHSO, the MOPH (via the Bureau of Policy and Strategy, so-called at the time) developed a policy to use disease codes according to the ICD-10 in order to compile data on illness of the population at the national level, and create a database with 12 folders (later increased to 50 folders at present). This system required hospitals to send data on inpatient treatment to the central office. The DRGs Version 1 was applied in 1998 in six pilot provinces. After the NHSO was set up, the original system of the MOPH was used first. Data were forwarded by the e-claim program, no longer requiring the send of data by compact disc (CD). These data were processed at the Central Office for Healthcare Information (CHI) for preliminary electronic verification. Next, the data were transformed into IPD weekly files which were sent back to the participating hospitals and NHSO. The NHSO entity responsible for the IPD weekly file is the Office of Claims Management, which subdivided into the Audit and Claims Services Sections. Funds are then transferred to the participating hospitals after the claims are approved. If an audit finds an under-claim or over-claim, there is a re-calculation of the proper amount in the claim, and the correction is applied in the next funding period.

Figure 26

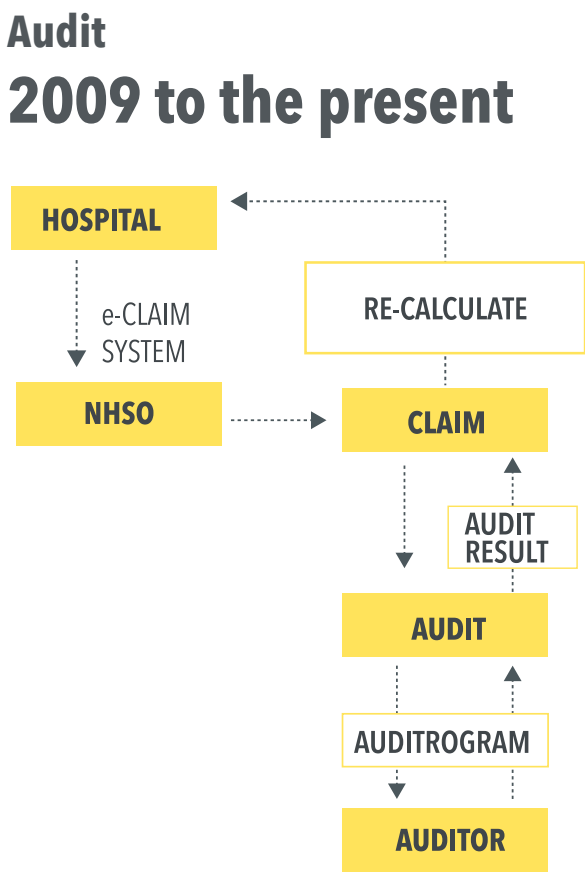
STEPS IN DATA FLOW FROM THE HOSPITAL TO THE AUDITORS: 2002 - 2008



Then, in 2009, the NHSO modified the format for sending data from the service facilities to NHSO directly, without the need to go through the Central Office for Healthcare Information (MOPH). In addition, the Auditogram program was installed to assist in the audit of medical records of in-patients in particular. This program can efficiently screen records to detect errors in the disease coding, and produce a target of the audit of medical records through sampling of medical records. The program produces an audit form and preliminary audit report, greatly increasing the speed of the process. At present, the NHSO now uses the electronic medical audit (e-MA) which has been operational since 2016. This internet-based application helps to reduce the burden of sending medical records. The hospital auditor can screen medical records on-line, around the clock. This has reduced management costs of the NHSO by over 20 million baht a year.

Figure 27

STEPS IN DATA FLOW FROM THE HOSPITAL TO THE AUDITORS: 2009 TO THE PRESENT



The NHSO budget for audits through a given fiscal year is about 450 baht per medical record inspected, if a pooling of centers is conducted. However, if the audit is via the eMA, the budget per medical record is reduced to 370 baht. The reduction is due to the savings from not having to convene meetings of participating centers in each year. In addition, the NHSO does not only audit inpatient medical records; it also conducts audits of the central reimbursement system, e.g., for cardiac catheterization, knee replacement, special shoes for diabetics, and OPD AE/high cost. In addition, this audit is applied for inpatient records of the Local Government Unit Scheme too and it applies the same criteria and the same financial rules and regulations

Figure 28

AUDITING SYSTEM USING THE E-MA PROGRAM

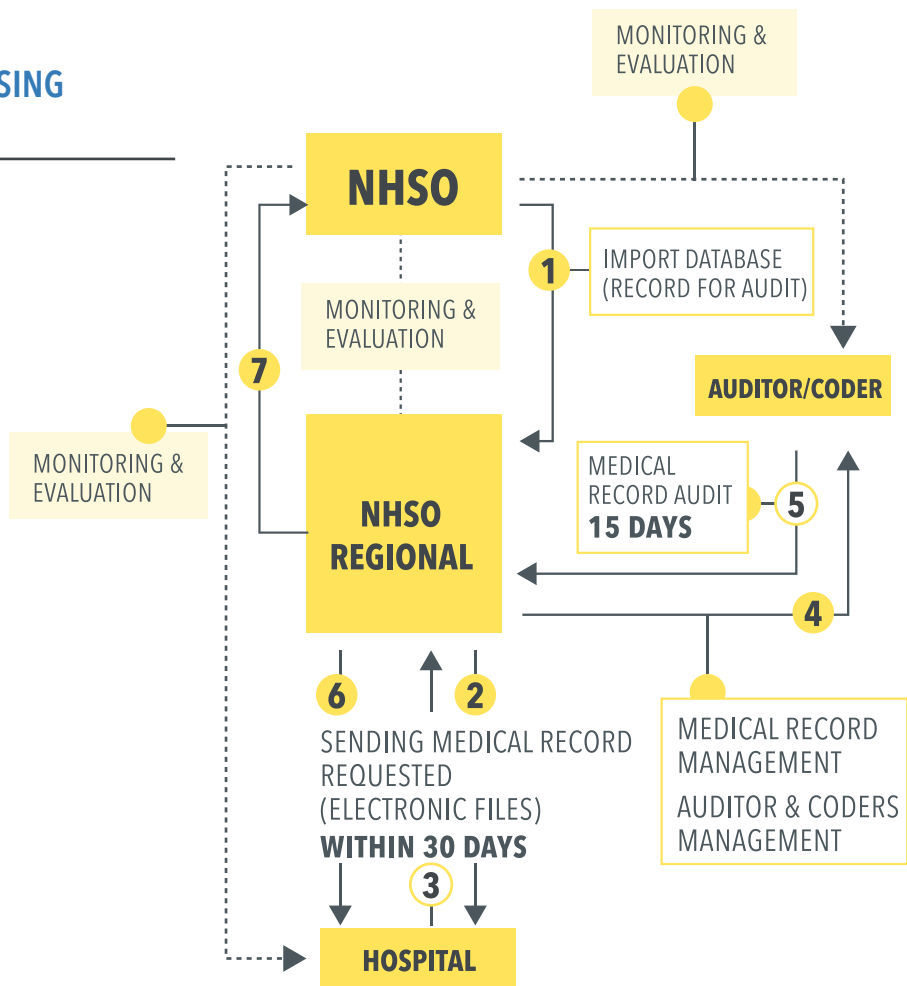
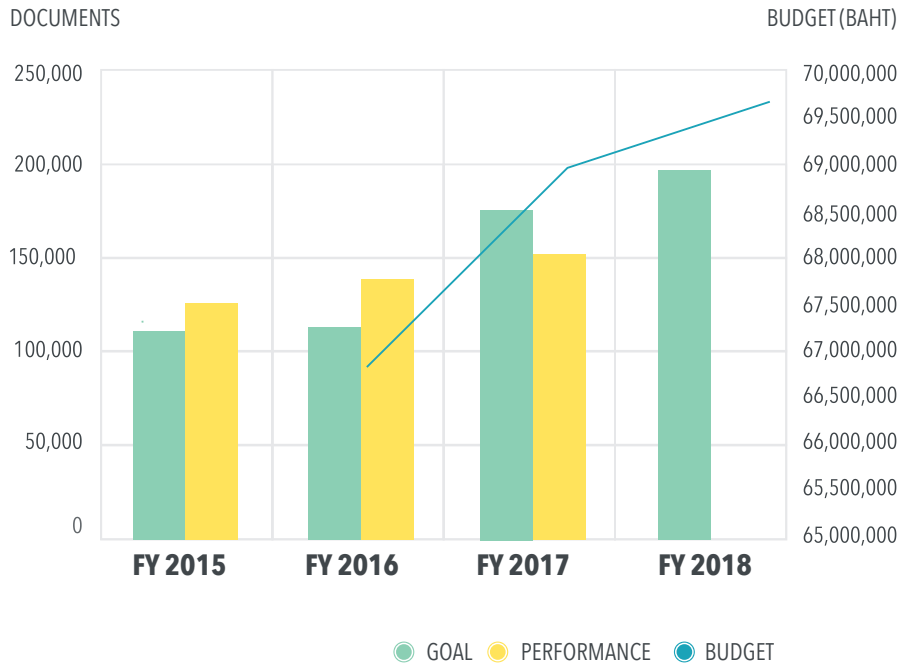


Figure 29

NUMBER OF MEDICAL RECORDS AUDITED AND BUDGET USED IN THE AUDIT OF MEDICAL RECORDS BY FISCAL YEAR



EVERYONE BENEFITS IF THE DATA FROM THE HEALTH FACILITIES IS ACCURATE AND COMPLETE

The audit system is a critical feature of the health system to identify irregularities or misuse of the claims and reimbursement of subsidized health and clinical care in Thailand. Sometimes the errors are accidental; in other cases there may be fraudulent intent. The NHSO audit system does not aim to find fault or punish erroneous claims and reimbursements. Instead, the aim of the NHSO by doing audits is to help the participating facilities to improve their systems and management. Everyone benefits if the data from the health facilities is accurate and complete. Accurate data help in health planning, epidemiological analysis, studying trends in disease diagnosis, and refining treatment methods. In addition, the auditing system needs to be continually adjusted to respond to patterns of errors in the summary assessment and disease code assignments. Ideally, the audit system will help produce a fair and accurate picture of the actual costs of health and clinical care. This will help the participating facilities to produce correct summary assessments and disease coding that is up to standard. This helps to keep the budget and the actual cost of services in balance with each other. The NHSO audit system also helps build capacity of the relevant personnel at all levels in the system. The learning can be two-way, since the NHSO is open to opinions and perspectives of the field as well, as this can motivate staff in positive and constructive ways.

In sum, the NHSO is an agency which is continuously striving to improve its systems and performance. The NHSO is a learning organization which aims to maximize efficiency and promote sustainability. The audit system of the NHSO is a key mechanism in promoting efficiency and ensuring quality of services that are up to standard and equitable for all Thais.

KEY INFORMANT

Krittiya SRIPRASERT
Worachai UNGAPINANT
Ratchanit PONVIPAVEE
Natapong ANUWATYANYONG
Patra ANEKWITHYAKIT
Rungjit LILANGAMWONGSA
Supit CHANTHAPING
Pradit WONKANARATANAKUL
Matana NATANANAN
Former Chief of Health Security Division of Srisaket Hospital

ADVISOR

Suwit WIBULPOLPRASERT
Viroj TANGCHAROENSATHIEN
Walaiporn PATCHARANARUMOL

RESEARCHER

Churnrurtai KANCHANACHITRA
Titiporn TUANGRATTANANON
Nithiwat SAENGRUANG
Hathairat KOSIYAPORN
Natdanai RATCHATANAWIN

EDITORIAL TEAM

Churnrurtai KANCHANACHITRA
Anthony BENNETT
Prateep NAIYANA
Cattleeya KONGSUPAPSIRI
Parnnachat TIPSUK

AUDIT SYSTEM FOR THE UNIVERSAL COVERAGE SCHEME (UCS) IN THAILAND

Project on Knowledge Management, Lesson Learnt Reflection, and Dissemination of National Health Security Office (NHSO)

NATIONAL HEALTH SECURITY OFFICE
The Government Complex Commemorating His Majesty the King's 80th Birthday Anniversary
5th December, B.E.2550 (2007) Building B
120 Moo 3 Chaengwattana Road, Lak Si District, Bangkok 10210
Phone : 02-141-4000 (Office hours)
Fax : 02-143-9730 - 1
Website : www.nhso.go.th
GPS : 13.8828179, 100.5652935
E-mail : Internhso@gmail.com
Facebook : https://www.facebook.com/NHSOInter

NHSO

National Health Security Office