โครงการ

# จัดกระบวนสร้างองค์ความรู้และถอดบทเรียนพร้อมเผยแพร่งานระบบหลักประกันสุขภาพฯ ฉบับภาษาอังกฤษ/ภาษาไทย

## เอกสารฉบับสมบูรณ์ (ภาษาอังกฤษ)

## (2) การบริหารจัดการโรคมะเร็ง Cancer Management


จัดทำโดย

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**(14 พฤษภาคม 2563)**

# MANAGEMENT OF CANCER

## UNDER THE UNIVERSAL HEALTH COVERAGE SCHEME

NHSO
National Health Security Office

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# GLOSSARY

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# THE CATASTROPHIC ILLNESS OF CANCER

Cancer is a catastrophic illness that can drastically impair the quality of life of its sufferers, due to the nature of its symptoms,[1, 2] the pain after surgery, the side effects of treatment (nausea, hair loss, constipation, body inflammation, etc.) and anxiety from relapse of various symptoms.[3] Cancer is still the leading cause of death among people around the world, with the number of cancer patients increasing every year. According to the World Health Organization, there were 18 million new cancer cases in the world in 2018, and around 9.5 million people died from the disease that year.[4] In Thailand, there were around 170,000 new cases and about 100,000 deaths in 2018.[5]

In addition to the impaired quality of life from the disease, cancer also affects the family members of patients, both in quality of life and finances. This is because, in most cases, cancer patients need long term care at home. This can place a significant burden on the family caregiver[3] and impact on the quality of life of the caregiver.[6, 7] Furthermore, cancer treatment is quite expensive. The average cost of radiation therapy in Thailand is nearly 25,000 baht per visit, and cancer patients usually require for multiple treatments.[9] Families without adequate resources or health insurance can be reduced to dire financial straits due to the high costs of treating and managing cancer.[1,8] Many families go into debt just to cover the costs of cancer treatment.[8] On top of that, cancer patients face health-related disabilities, and caregivers have to devote extra time to looking after patients, therefore, in some cases, incapacitating to work and aggravating financial hardship.[1, 8]

Cancer treatment and care require high-level tertiary care, which provides comprehensive care, modern equipment, specialist, as well as close supervision from other medical personnel such as radiologists, nurses, physiotherapists and nutritionists. In addition, tools/equipment that are needed to provide medical services for cancer are expensive, both in terms of investment cost and maintenance (e.g., radiotherapy equipment). This presents a further obstacle to meeting the needs of the cancer patient.[3, 10] With a limited budget, only a few potential hospital is available in some areas, particularly in Bangkok and provinces that tertiary hospitals are established. Therefore, mere access to comprehensive treatment is an immediate challenge for Thai cancer patients.[9]

From the problems and obstacles of cancer as mentioned above, public health management related to cancer is, therefore, a necessity and a challenge in every country around the world. So far, Thailand has been successful in helping all its citizens to access essential health services as a basic human right. Besides, Thailand has made these services affordable for all to prevent financial risks from essential medical expenses, while also giving people access to the health services they need. In the public sector, Thailand has three main health insurance systems to achieve universal health coverage (UHC). For cancer case management in the Universal Coverage Scheme (UCS) (or known as the 'gold card' system), a health insurance for all citizens is managed by the National Health Security Office (NHSO). The cancer management by UCS has been continuously improved over time. The relevant experts and associations are involved in the development of standards for cancer treatment, improvement of financial management, and offering the basic benefits package to help cancer patients access more quality treatment and protect households from bankruptcy due to health cost burdens.

**CANCER TREATMENT AND CARE REQUIRE HIGH LEVEL TERTIARY CARE**

# 2

# MANAGEMENT OF CANCER CARE

Thai cancer patients are eligible to access to health services that cover health promotion and disease prevention, diagnosis, medical treatment, as well as rehabilitation. This is under the expressed right to essential health services as defined in the 2002 National Health Security Act (Article 311), and also in accordance with the National Cancer Control Programmes, which has a strategy to care for cancer patients through primary, secondary, tertiary prevention treatment, and palliative care.[1]

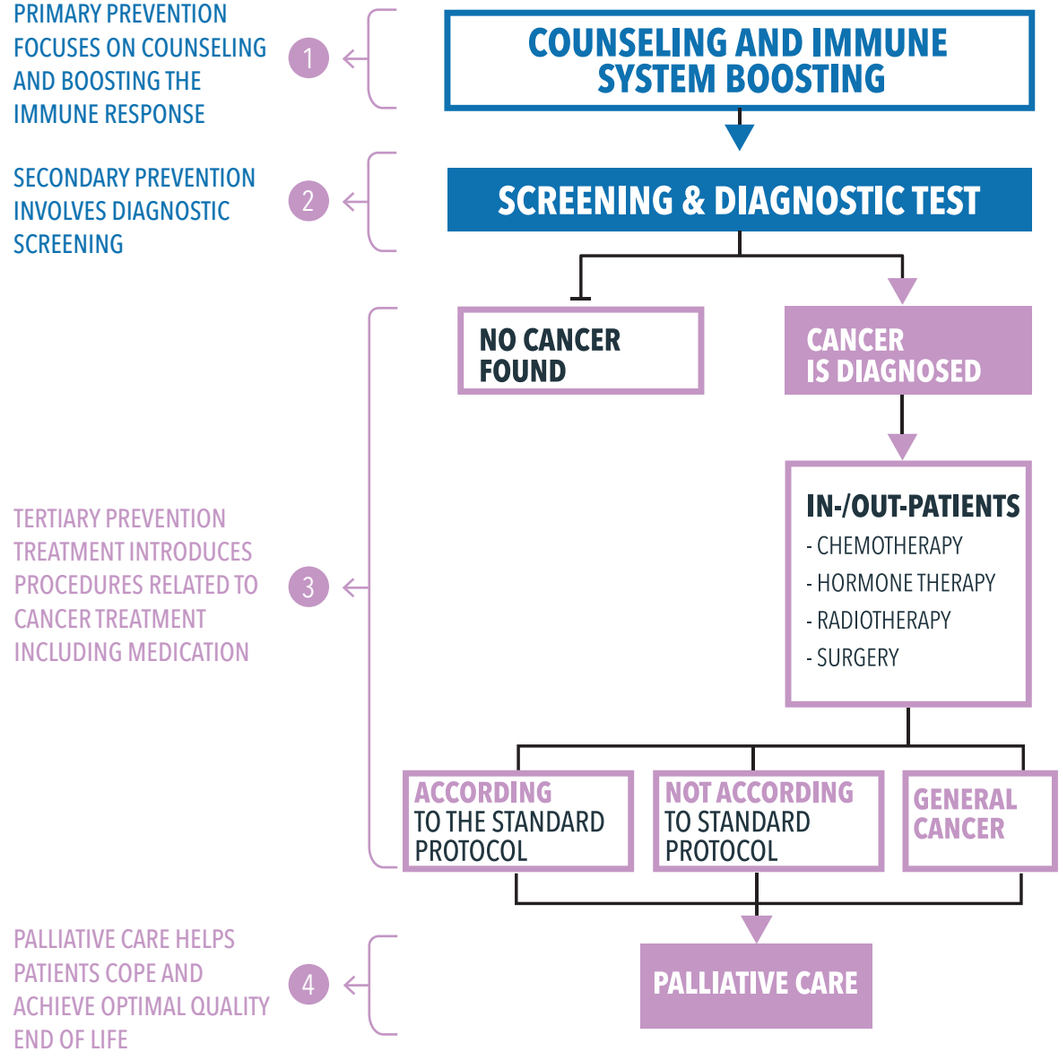
The strategies in each stage are as follows:

1. Primary prevention focuses on counseling and boosting the immune response;
2. Secondary prevention involves diagnostic screening;
3. Tertiary prevention treatment introduces procedures related to cancer treatment including medication;
4. Palliative care helps patients cope and achieve optimal quality end of life.



## FRAMEWORK FOR CANCER PATIENT CARE

Figure 1



# 2.1

## PRIMARY PREVENTION

Some cancers can be prevented by avoiding or reducing risk factors, such as no smoking to help prevent lung cancer. Liver fluke control can prevent the occurrence of bile duct and liver cancers. Raising awareness and changing dietary habits can help to prevent colorectal cancer, for example.[1, 2] Cancer prevention significantly reduces health risk factors, morbidity, and mortality in the country. It also helps to reduce household health expenditure. The health promotion and disease prevention cover behavior modification interventions, counseling, campaigns for health promotion and disease prevention, immunization, medication, and procedures for health promotion and disease prevention.[1]

**SOME CANCERS CAN BE PREVENTED BY AVOIDING OR REDUCING**

**RISK FACTORS**



# 2.2

## SECONDARY PREVENTION

Every Thai national is eligible to have cancer screening even in the absence of symptoms, then to have diagnostic tests. This early diagnosis can dramatically improve treatment outcomes and reduce the death rate from cancer. However, screening is still limited to cancer that can be potentially detected. The screening criteria include: 1) a certain cancer affects a large portion of the population, and its screening is cost-effective; 2) The nature or progression of the suspected cancer is within the appropriate period for screening; 3) a screening method meets with standard; 4) effective existing treatment for such cancer; 5) The cost and convenience of the screening method is acceptable to both the screener and recipient; and 6) capacity of facility and human resources.[12]

**EVERY THAI NATIONAL IS ELIGIBLE TO HAVE CANCER SCREENING EVEN IN THE ABSENCE OF SYMPTOMS**

Once a sign of cancer is detected, there must be a diagnostic examination before proceeding to treatment. The diagnostic exam includes test on pathology, blood, biopsy, tumor, as well as staging diagnosis. All of these are important in the planning of treatment and prognosis.[12]

# 2.3

## TERTIARY PREVENTION TREATMENT: PROTOCOL DEVELOPMENT FOR STANDARD TREATMENT OF CANCER

Knowledge of cancer care, as well as treatment and tools, have developed rapidly and these advancements require specialist. However, Thailand still faces a shortage of cancer experts and, therefore, the standard of cancer treatment or protocol is important and necessary for service providers, especially the healthcare units that still have limitations in capacity development and knowledge.

Initially, it was the cancer care clinicians who requested a standard protocol for cancer case management that is appropriate for Thailand. Therefore, the NHSO supported the implementation of a 'cancer protocol' by establishing the Working Group for Cancer Reimbursement Guideline Development[13] with the responsibility to develop cancer protocols by employing drugs in the National Drug List.[14] The Working Group also played a role in the development of payment, treatment standards, and setting up healthcare unit standards. The Working Group consists of various cancer specialists. They have developed cancer treatment standards by applying relevant research results from around the world. The main objectives of establishing a protocol are to let cancer patients access to the necessary services and quality treatment, covering diagnosis, treatment according to a certain stage of cancer (surgery, hormone therapy, chemotherapy, and radiotherapy), and palliative care. The protocols vary among types of cancer.[13, 15]

The very first protocols were developed for the management of leukemia and lymphoma. After that, additional seven protocols for adults were developed. The seven address the most common cancers in Thailand,

**THAILAND STILL FACES A SHORTAGE OF CANCER EXPERTS**

including breast, cervical, ovarian, nasopharynx, lung, esophageal, and colon and peripheral colorectal cancer. The working group has continually developed new protocols as needed. At the time of this writing, there are 12 additional cancer groups with protocols (yielding a total of 19 for adult cancer).[14] A protocol for child cancer was also developed,[16] to bring the total to 20 protocols. The additional 12 protocols for adult cancers include uterine, liver, bile duct, bladder, prostate, gastric, adult lymphoma, acute lymphoblastic leukemia (ALL), acute myeloid leukemia (AML), acute promyelocytic leukemia (APL), chronic myeloid leukemia, myeloma leukemia, and osteosarcoma.[14]

# 2.4

## PALLIATIVE CARE

Since the chances of a complete cure are very small, cancer is also a disease that requires a prolonged hospitalization or recovery, and a high-cost care. Furthermore, patients often have considerable pain and discomfort during treatment. Therefore, pain relief and treatment should be carried out at the same time as treatment. However, most healthcare units cannot support terminal cancer patients due to the limited number of beds.[1] NHSO has a policy to support the availability of services for all groups, so that patients at the end-stage of life will receive proper care at home. This involves joint care of the family, the healthcare unit, the caregiver, and the community by following palliative care guidelines.[17]

**A NETWORK OF CARE AMONG HEALTHCARE UNIT, HOME, AND COMMUNITY**

The NHSO support palliative care by establishing a network of care among healthcare unit, home, and community. The service network is in the ratio of 1 host to 3 sub-units. The host unit must have a clear scope of duties and responsibilities for palliative care services. It can exchange knowledge to improve the palliative care system within the network and support the procurement of morphine. The sub-unit must be a primary care unit with palliative care capability and located in an area where the host can manage the services in the network. The sub-unit must be able to receive referral cases from the host and send them back to their community or home.[18]

# 3

# FUND MANAGEMENT, PAYMENT, AND BENEFITS PACKAGE FOR CANCER

Cancer care services range from primary prevention to palliative care and cancer is also one of many diseases that cost for patient care exceeds differential capitation. Therefore, healthcare units often have to bear the excess cost. This may cause the healthcare unit to not provide full quality of care for patients. To encourage healthcare units to provide quality services for cancer patients, the NHSO has developed a budget classification system. The design of this system is an important innovation under the administration of the NHSO. The sub-fund yields extra works that beyond the capitation. This allows the healthcare unit to provide care according to the extra tasks.[19] There are four sub-funds involved in the reimbursement of cancer services: 1) Health promotion and disease prevention services; 2) General outpatient services; 3) General inpatient services; and 4) Specific vertical programs.[18, 20, 21]

NHSO sets out the payment criteria from the four sub-funds on a per capita basis. The payments include prospective and retrospective (reimbursement after service, which is based on the DRGs and fee schedule). In addition, the benefits package is set up to control the cost.[18, 20, 21]



# FOUR
## SUB-FUNDS INVOLVED IN THE REIMBURSEMENT OF CANCER SERVICES

**1.** HEALTH PROMOTION AND DISEASE PREVENTION SERVICES

**2.** GENERAL OUTPATIENT SERVICES

**3.** GENERAL INPATIENT SERVICES

**4.** SPECIFIC VERTICAL PROGRAMS

At the beginning of the establishment of the National Health Security Act (2002), the general benefits package determination neither take into account cost-effectiveness, nor evaluation of the effectiveness of treatment. Instead, the benefits package was designed to primarily help lower-income people access essential treatment. However, that approach impacted the limited budget for all types of treatment, especially diseases with a high cost of treatment, such as cancer.

As a result, the NHSO established a Subcommittee for the Development of the Benefits Package and Service Delivery (SCBP), with the mission to consider necessary and appropriate health services to be added into the benefits package.[22, 23]

**THE SUB-FUND MANAGEMENT, PAYMENT, AND BENEFITS PACKAGE FOR CANCER CASES COVER SCREENING TO END-OF-LIFE CARE AS FOLLOWS: 1) PRIMARY PREVENTION; 2) SECONDARY PREVENTION; 3) TERTIARY PREVENTION TREATMENT; AND 4) PALLIATIVE CARE, AS DETAILED BELOW:**

# 3.1

## PRIMARY PREVENTION

The NHSO has established the benefits package for health promotion and cancer prevention for Thai people. The objective is to reduce the risk of certain types of cancer that can be prevented with counseling, advice, demonstration, immunization, medication, and procedures for health promotion and disease prevention.[12] The services as described above use the budget from the "Health promotion and disease prevention services" fund.

Counseling, advice, and demonstration are the basic guidelines for raising awareness of cancer risk factors. These include: 1) Providing knowledge about breast cancer and demonstrating on how to do self-breast examination;[24] 2) Condom provision and demonstration on how to use condoms[24] to prevent cervical cancer that is attributable to sexually-transmitted HPV;[12] and 3) Screening for the risk of smoking, drinking alcohol, and substance use by ASSIST (Alcohol, smoking and substance involvement screening test) assessment with short guidance.[24] ASSIST is a screening tool to help reduce the risk of lung cancer from the consumption of tobacco products, as well as liver cancer and breast cancer from alcohol consumption.[12] The NHSO determine on how to pay for those screening by capitation according to the number of eligible people registered in the healthcare unit.

Another way is vaccination against cancer. The NHSO delivers in-kind provision of vaccine, and in-cash prospective payment for cost associated with vaccination to healthcare units. The major vaccines against cancer are the Hepatitis B vaccine and the HPV vaccine. The hepatitis B vaccine helps to prevent liver cell cancer[12] and is classified as part of the Expanded Program Immunization together with other essential vaccines, i.e., TB, diphtheria, tetanus, whooping cough, polio, rubella, mumps, and encephalitis JE vaccine. HPV vaccine, included in the benefits package since 2017, is used to prevent cervical cancer. The vaccine is given to Thai girls in primary school grade 5 and Thai girls age 11-12 years who are not in the formal education system. In addition to vaccines for cancer prevention, the NHSO also provides cancer patients, receiving chemotherapy, seasonal influenza vaccines. That is because patients receiving chemotherapy are prone to influenza infection.[20]



# 3.2

## EARLY DETECTION

The benefits package for cancer detection covers screening and diagnostic tests of cancer. The ways to pay draw upon budget from various funds are as follows:

- For cervical cancer screening, Pap smear, Visual Inspection with Acetic Acid (VIA) and cryotherapy are used for Thai women age between 30-60 years.[20] In 2019, the NHSO added HPV DNA test and Liquid-based cytology to the benefits package.[25] These screening and tests are reimbursed by the fee schedule from the "Health promotion and disease prevention services" fund.

- For colorectal cancer screening, FIT test, colonoscopy, polypectomy, and biopsy are introduced for UCS members age 50-70 years to reduce the incidence of colorectal cancer.[20] The cost of the FIT test screening is paid by capitation based on the number of eligible members registered to the healthcare unit with the budget from The "General outpatient services" fund. While cost for colonoscopy, polypectomy, and biopsy are based on DRGs with adjRW and are drawn from the "General inpatient service" fund. [20, 21]

# 3.3

## TERTIARY PREVENTION
## TREATMENT

Chemotherapy, hormone therapy, and radiotherapy are the main interventions for treating cancer. The interventions are established in the protocol for each type of cancer. The protocol is considered the standard treatment for Thai cancer patients. Therefore, the healthcare unit should provide treatment according to the procedures specified in the protocol. That said, the protocol is not a regulation of conduct. Therefore, a specialist can act differently depending on the different conditions or if there is reasonable justification. For example, some cancer patients may have side effects, or a recommended treatment is ineffective. In those cases, it is acceptable to use treatment outside the protocol.

In addition, the protocol does not cover all cancer treatments. Therefore, the NHSO has set the criteria for paying for chemotherapy, hormone therapy, and radiotherapy through the e-Claim system. The payment can be divided into the following: 1) reimbursement for treatment according to the protocol; 2) reimbursement for cancer treatment not according to the protocol; and 3) reimbursement for cancer with no protocol established. The payment draws from the "Specific vertical programs" fund and the NHSO reimburse with fee schedule. It also uses budget from the "General inpatient service" fund for general surgical treatment, minimally invasive surgery (MIS), or one-day surgery, with DRGs method.[21] The detail of reimbursement shows in Table 1.



## REIMBURSEMENT FOR CANCER TREATMENT

Table 1

| | CANCER WITH PROTOCOL: TREAT ACCORDING TO PROTOCOL | CANCER WITH PROTOCOL: TREAT NOT ACCORDING TO PROTOCOL | CANCER WITHOUT PROTOCOL ESTABLISHED: GENERAL CANCER |
|---|---|---|---|
| OUT-PATIENT | 1 Reimburse for actual cost of chemotherapy drugs, hormone therapy drugs, and radiotherapy per visit, but **not exceeding the ceiling rate announced by NHSO.**<br>2 Reimburse for actual cost of mixing and giving chemotherapy drugs, but **not exceeding 160 baht/day.** | 1 Reimburse for actual cost of chemotherapy and hormone therapy drugs per visit. Additionally, reimburse for mixing and giving chemotherapy drugs, but **not exceeding 160 baht/day. All the cost incurred is limited to 2,300 baht.**<br>2 Reimburse for actual cost of radiotherapy, but not exceeding the ceiling rate announced by NHSO. | Reimburse for actual cost of chemotherapy drugs, hormone therapy drugs and radiotherapy per visit. Additionally, reimburse for mixing and giving chemotherapy drugs, but **not exceeding 160 baht/day. All the cost incurred is limited to 4,000 baht**<br>Remarks: For outpatients, use the point system with ceiling with Global budget |
| IN-PATIENT | 1 Reimbursement with the **Deduct DRG system**.<br>2 Additional payment (add on) for actual cost of chemotherapy and hormone therapy drugs, but ***not exceeding the ceiling rate announced by NHSO***. | Reimburse with the **regular DRG system** | Reimburse with the **regular DRG system** |

Source: Handbook for requesting reimbursement for public health service expenses, Fiscal Year 2020, by the NHSO

In the case of inpatients, the reimbursement for treatment according to the protocol: the calculation is modified from the regular DRG to Deduct DRG. That is to say, AdjRW in the regular DRG with exclusion of medication cost is used, then multiplied by CCUF (cancer chemotherapy unbundling factor). Finally, it yields Deduct DRG. The chemotherapy and hormone costs are then added on.[15, 21] This kind of adjustment allows the reimbursement to be as close to the actual cost as possible.

Data from the UCS cancer registry for 2016-19 (Figures 2 and 3), show that, in the case of cancer treatment with protocol, the healthcare units delivered treatment according to the protocol (outpatient and inpatient cases) for approximately 80 percent of the total number of services and about 1.5–1.8 billion baht were reimbursed (60-70 percent of the total amount paid). The non-protocol treatment accounts for about 20 percent of the total number of services, and 600 million-1.1 billion baht were reimbursed (30-40 percent of the total payment amount). This data reflects that most UCS cancer patients receive treatment that meets the prescribed protocol. There are still some cancer patients who may not be able to respond well to the standard protocol treatment. Or, some patients may have side effects of treatment following the protocol.  In those cases, the healthcare unit is justified in providing treatment outside protocol.

**NON-PROTOCOL TREATMENT ACCOUNTS FOR ABOUT**

**20 %**

**OF THE TOTAL SERVICES**

**CANCER TREATMENT WITH PROTOCOL APPROXIMATELY**

**80 %**

**OF THE TOTAL NUMBER OF SERVICES**

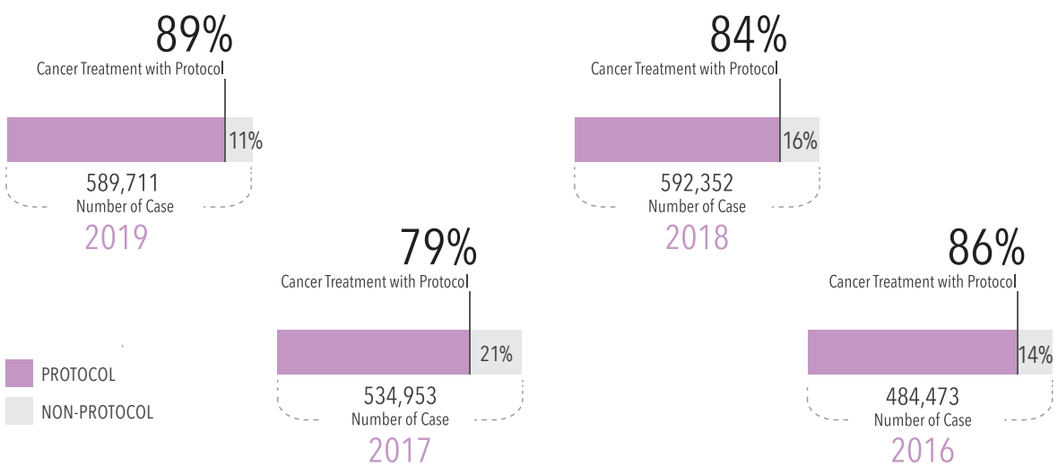
**1.5–1.8**

**BILLION BAHT**

**WERE REIMBURSED**

## NUMBER AND PERCENTAGE OF CANCER TREATMENT WITH DEFINED PROTOCOL BY OUTPATIENT AND INPATIENT CASES

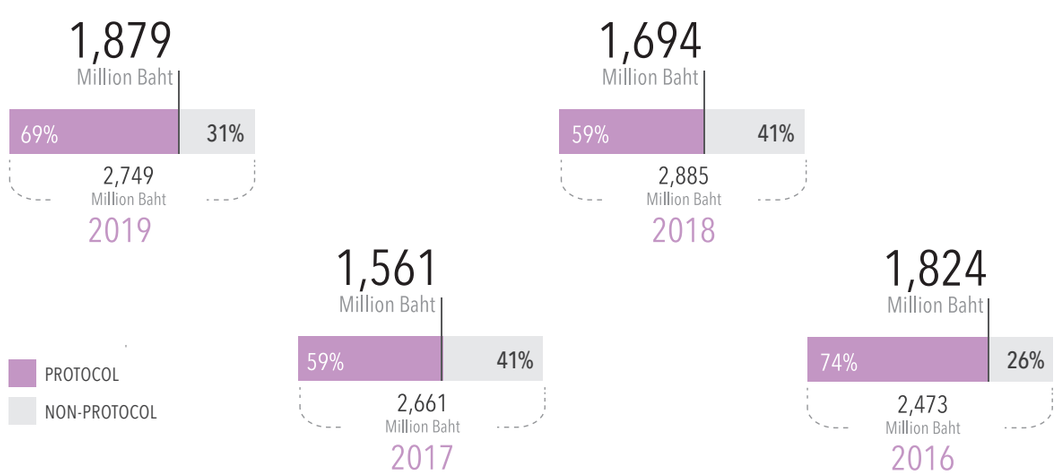
Figure 2




Remarks: Data on treatment of cancer with a defined protocol, including chemotherapy, radiation therapy and more.
Source: NHSO Service Allocation and Reimbursement Office, November 1, 2019, Working Group on the Development Guidelines for the Management of Tertiary Prevention Treatment in UHC

## AMOUNT AND PERCENT OF REIMBURSEMENT FOR CANCER SERVICES WITH PROTOCOL BY OUTPATIENT AND INPATIENT CASES

Figure 3




Remarks: Data on treatment of cancer with a defined protocol, including chemotherapy, radiation therapy and more.
Source: NHSO Service Allocation and Reimbursement Office, November 1, 2019, Working Group on the Development Guidelines for the Management of Tertiary Prevention Treatment in UHC

For leukemia and lymphoma, the NHSO has established the benefits package for Hematopoietic stem cell transplant (HSCT), which is an effective way to treat both cancers and can even achieve an entire cure. Cost for this treatment is paid by drawing budget from "Specific vertical programs" fund and a lump sum payment is used. The payment covers services before and after the HSCT as well as other related procedures. The NHSO pays in two installments: The first installment covers 80 percent of the expenses, and the second installment pays for the rest.[20, 21]

**CL OF LETROZOLE HAS SAVED THAILAND AROUND 1.1 MILLION BAHT.**

In addition, the NHSO has continuously added expensive cancer drugs to the National Drug List (E 2). Those drugs include Letrozole and Trastuzumab for breast cancer; Docetaxel for breast/prostate/lung cancer; and Nilotinib, Dasatinib, and Imatinib for the treatment of CML leukemia[20]. The NHSO pays either in-kind provision of the drugs or in-cash cost associated with the use of the drugs. The cost of these drugs is drawn from the "Specific vertical programs" fund,.[21]

## COMPULSORY LICENSES OF PATENTED CANCER DRUGS

Box #1

Compulsory licenses (CL) are needed for new chemotherapy and targeted therapies, which are effective in curing or, at least, extending the patient's life. But these drugs are very costly, as they are still on patent. Therefore, there are no generic drugs that can compete in the market. Accordingly, the Thai government has been compelled to rely on the 51st Thai Patent Act to enforce the right to access four drugs at generic prices: Docetaxel, Letrozole, Erlotinib and Imatinib. As a result, these essential drugs are included in the National Drug List, and cancer patients can access these drugs with their National Health Security benefits.[26, 27]

The success of the Thai CL action on cancer drugs has increased the access to Letrozole, Docetaxel, and Erlotinib for 8,916, 10,813 and 256, cases, respectively. The increasing DALYs of Letrozole, Docetaxel, and Imatinib access is accounted for 3,656, 1,251, and 2,435 respectively[27]. In addition, the cost of the procurement of cancer drugs has been greatly reduced by CL. This reduction has generated savings between the 2008-2010 Fiscal Years for Docetaxel (20 mg and 80 mg) of around 23 million baht and 67 million baht, respectively. The CL of Letrozole has saved Thailand around 1.1 million baht.[28]

## BENEFITS FOR PALLIATIVE CARE FOR HOLISTIC END-OF-LIFE CARE

Box #2

The NHSO stipulates the palliative care benefits for ongoing care for patients at the hospital to help improve the quality of life of patients and caregivers. The most common cases needing palliative care are those with advanced lung cancer, cholangio-carcinoma, liver cancer, breast cancer, colon cancer, and patients with other chronic diseases such as chronic renal failure, COPD, and stroke, etc. These patients are eligible for palliative care, resulting in a disbursement of budget for care from 30.64 million baht in 2014 to 60.39 million baht in 2016. This success is a result of cooperation from all sectors, local public health agencies, and local government organizations that supply ventilators, dosing machines, and patient beds. In addition, the community helps to take care of the patients out of a sense of compassion and loving-kindness. Ultimately, this success is a result of related policies of the MOPH and related entities, whether that is the clinic, family doctor, health service system development plan (Service Plan), long-term health care fund, and the district quality of life development fund, etc.[29]

# 3.4

## PALLIATIVE CARE

A key feature of the benefits package for terminal cancer patients is home-based morphine pain relief, as well as supporting patient visit services to assess the conditions, needs, and quality of life as well as the capability of relatives and caregivers[18] as explained in section 2.4.

In payment for palliative care services, the NHSO draws on budget from the "Specific vertical programs" fund, and requires healthcare units to record delivered interventions into the e-Claim system within 30 days. After that, the NHSO will process the payment and respond to healthcare units. It is the additional lump-sum payment for home-based palliative care. The rate depends on the duration starting from the first day of service at home until the day the patient dies (Table 2) [21]. The mortality record must conform to the Civil Registration database.[17]

## PALLIATIVE CARE PAYMENT RATE

Table 2

| DURATION OF HOME-BASED CARE (DAYS) | RATE (BAHT) |
|---|---|
| 30 or less | 4,000 |
| 31-60 | 5,000 |
| 61-90 | 6,000 |
| 91-120 | 7,000 |
| 121-150 | 8,000 |
| 151 or more | 9,000 |

Source: National Health Security Fund Management Budget Statement, FY 2019, by NHSO

Table 3 shows cancer management under the UC scheme, covering benefits packages, sub-funds, and payments.

## SUMMARY OF THE BENEFITS PACKAGE, SUB-FUNDS, AND PAYMENTS FOR CANCER CARE

Table 3

| STAGE | BENEFITS PACKAGE | FUND | METHOD OF COMPENSATION PAYMENT |
|---|---|---|---|
| HEALTH PROMOTION AND DISEASE PREVENTION | Behavior change for risk reduction | ThaiHealth | |
| | Condoms | Health promotion and disease prevention | Differential capitation |
| | Breast self-exam | Health promotion and disease prevention | Differential capitation |
| | Screening using ASSIST to prevent cancer of the lung, liver, and breast | Health promotion and disease prevention | Differential capitation |
| | HPV vaccine for prevention of cervical cancer from sexually-transmitted HPV | Health promotion and disease prevention | Vaccines provision, and cost associated with vaccination to healthcare units |
| | Hepatitis B vaccine to prevent liver cancer | Health promotion and disease prevention | Vaccines provision, and cost associated with vaccination to healthcare units |
| | Seasonal flu vaccine for those on chemotherapy | Health promotion and disease prevention | Vaccines provision, and cost associated with vaccination to healthcare units |
| SCREENING AND DIAGNOSTIC TEST | Pap smear/VIA/Cryotherapy/HPV DNA test / Liquide based cytology for cervical cancer screening | Health promotion and disease prevention | Fee schedule |
| | FIT test for colon cancer screening | General outpatient service | Differential capitation |
| | Colonoscopy/Polypectomy/Biopsy for confirming colon cancer | General inpatient service | DRGs with adjRW |
| TREATMENT | Chemotherapy, hormone therapy, radiotherapy | Specific vertical programs | In accordance with protocols (details in Table 2). |
| | HSCT | Specific vertical programs | Lump-sum payment (covering before and after HSCT and other related procedures)<br>Divided into 2 installments, the 1st one covers 80% of the expenses and the 2nd one covers 20% of the expenses |
| | General surgery, one-day surgery, MIS, single-day surgery | General inpatient service | In accordance with protocols for inpatient (details in Table 2). |
| | NLEM category E (2) for cancer | Specific vertical programs | In-kind provision of the drugs and in-cash cost associated to the use of the drugs |
| PALLIATIVE CARE | Home visits | Specific vertical programs | Lump-sum payment according to the period of palliative care at home |
| | morphine | Specific vertical programs | Lump-sum payment according to the period of palliative care at home |

# 4

# MECHANISMS OF SPECIFICATIONS FOR THE CANCER BENEFITS PACKAGE

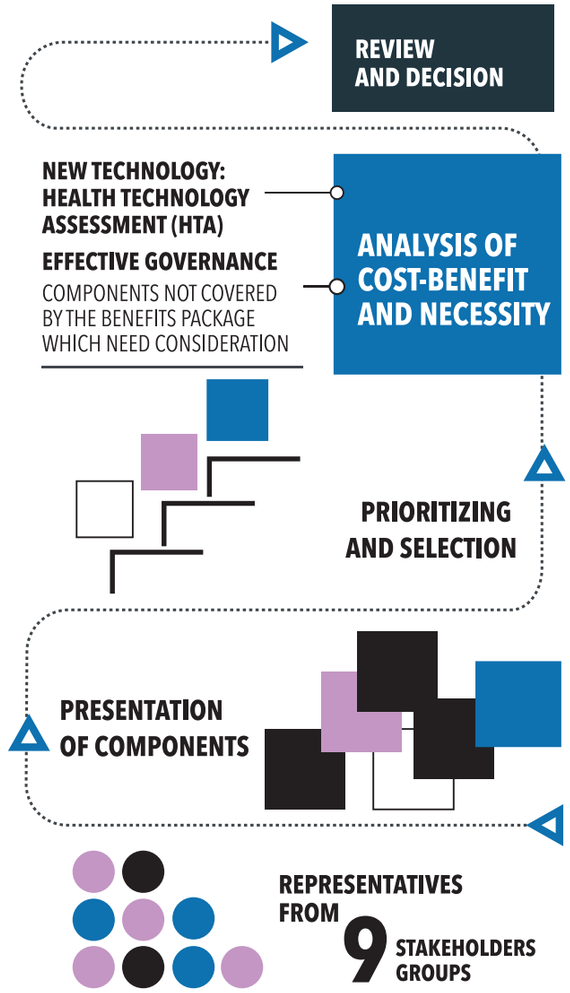
The specification for the cancer benefit package is similar to other diseases. It is based on the inclusion list in accordance with the regulations of the MOPH. The NHSO has the authority to determine the types and scope of public health services necessary for health and quality of life as defined in Article 18 (3) of the 2002 National Health Security Act.[11] The NHSO began the Universal Coverage Benefit Package (UCBP) in 2009 as a primary mechanism for regulating access to health services for Thai citizens by considering necessary and appropriate health services to be added to the benefits package.[22, 23]

In order to determine the optimal contents of the benefits package, cooperation is needed from all sectors to obtain a comprehensive response under the UC scheme in a way that is transparent and based on academic evidence. The determination of the benefits package is a process which is proposed from a range of stakeholders, namely: 1) policymakers; 2) medical experts; 3) public health experts; 4) general public; 5) civil society; 6) patient networks; 7) the private sector; 8) committees/subcommittees /related working groups; and 9) medical innovation groups. The process includes a review of relevant literature and evaluation of the proposed topic or issue. This enables a prioritization, selection, and assessment of cost-effectiveness, cost-benefit, and necessity. The group then evaluates the proposals, and eventually comes up with policy recommendations for the decision-making process regarding the benefits package in the UCS.[22, 23, 30]

Many cancer-related benefits packages are continually undergoing review and revision. Data from 2012 to 2015 show that selected cancer benefits packages cover screening to palliative care, such as the development of screening method for colon cancer in high-risk populations, the payment mechanism for HPV screening to prevent cervical cancer in women of reproductive age over 30 years, reducing the risk of cirrhosis and liver cancer by increasing the effectiveness of diagnosis and educating about hepatitis C virus to its suffers and the general public, and development of a home referral and follow-up system to support the treatment of terminally ill patients in the family setting.[22]

## STEPS IN SPECIFYING THE BENEFITS PACKAGE

Figure 4



# 5

## A SINGLE CANCER STANDARD INTEGRATING AMONG 3 INSURANCES TO ERADICATE INEQUALITY

Regardless of what insurance scheme  cancer patients entitle to in the UHC system, they can be ensured that they receive the same cancer treatment service. The National Economic and Social Advisory Council, MOPH, together with the NHSO and other relevant agencies, agreed on integrating the 3 health insurance schemes into one single standard treatment for cancer in 2014 to reduce inequality.  The standard initially applied to treatment for cancers of the lung, liver, breast, cervix, and colon, since they are the most prevalent cancers in Thailand. These cancer patients, whether insured by the UCS, Civil Servants Medical Benefits Scheme (CSMBS), or the Social Security System (SSS), can be ensured that they receive the same service. This standard covers screening to palliative care.[31, 32] This standardization across insurance systems facilitates insurance switching, since cancer care requires prolonged hospitalization and during the care a patient may switch from one insurance to another.



# 6

## PEOPLE PARTICIPATION: FROM THE THAI CANCER SOCIETY TO FRIENDSHIP SUPPORT CENTER

The 2002 National Health Security Act calls for people participation in the health insurance system, in terms of service receiving, management, verification, and control.  Therefore, this mandate is considered the starting point to create a network of people from various parties, including recipient, provider, and purchaser, to coordinate and build understanding and good relations among them. Their participation is also encouraged for health system development, which should lead to satisfaction, and  the sense of true health insurance for all.[33]

The Thai Cancer Society is one of people's networks, and an initiative volunteer community together with the Thai Heart Network. The Society was formed in 2003 by more than 20 organizations, covering civil society, public, and private sectors. Its members built collaboration and experience sharing.  These then led to improvement focusing on patient-centered and effective solution. Specifically, the Thai Cancer Society was efficient in carrying out activities relating to the care, prevention, supporting group, experience sharing to bring cancer awareness and to propose suggestions to improve cancer care under the UCS.[33]

Owing to the success of the Thai Cancer Society, the NHSO determined that the Society was useful to help patients access public health services in the health insurance system and encourage quality volunteers to participate in the health care team of the health-care unit.[33] Coupling with the encouragement of Dr. Sanguan Nittayarumpong, the first secretary-general of the NHSO, the Friendship Support Center then beautifully bloomed in 2006. It is established in the healthcare unit with a major mission to support patients in term of treatment and rehabilitation both in the hospital and community settings.  The center also creates a model for volunteer activities in the care of chronic patients and is a center for academic and social exchange between other chronic patient volunteers.[33]

# 7 QUALITY CONTROL OF SERVICES

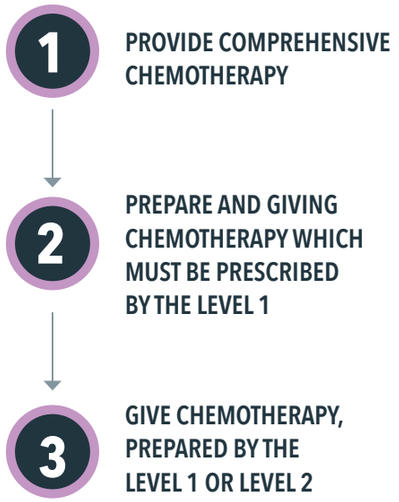
## 7.1

### STARTING POINT: QUALIFICATION OF HEALTHCARE UNITS

Enrolling provider being capable of delivering chemotherapy, hormones, and radiotherapy is the first step of quality control. Only registered healthcare units are allowed to be reimbursed for service fees in the UC scheme. A healthcare unit, desired to enroll for a cancer healthcare unit, must submit registration form and self-assessment to its branch office.[21] There are two types of enrollment: 1) enrollment for the chemotherapy and hormone therapy unit, and 2) enrollment for the radiotherapy unit.

To enroll for the chemotherapy and hormone therapy unit, a prospective healthcare unit must be accredited by Hospital Accreditation (HA) or ISO 9001: 2000, or other equivalent standards. However, the enrolled unit may not be fully equipped with necessary resources such as area, personnel, and facility. To increase public access, the NHSO has established a referral system between healthcare units. The unit is then categorized into three levels by its capacity of chemotherapy, consisting of prescribing, chemo preparation, and chemotherapy administration. Level 1 is a healthcare unit that can provide comprehensive chemotherapy, while Level 2 has the capacity only to prepare and giving chemotherapy, which must be prescribed by the Level 1. Level 3 has only the capacity to give chemotherapy, prepared by the Level 1 or Level 2, to cancer patients.[21] The capacity of each level is summarized in the Appendix.

The NHSO sets the qualifications for the radiotherapy unit, roughly resembling to the chemotherapy and hormone therapy unit. A prospective healthcare unit must be certified by HA or ISO 9001: 2015 or standard certified by the International Society for Quality in Health Care (ISQua) and be fully equipped with relevant facility, staff, and equipment.[21]




## 7.2

### ENDPOINT: AUDITING THE REIMBURSEMENT AND SERVICE QUALITY

The audits include Billing and Quality audits. A billing audit is a financial auditing system. Because cancer requires high-cost medical equipment for treatment, the NHSO reimburses the healthcare unit by fee schedule. A billing audit acquires the actual cost of service, therefore it helps to control the quality of medical services to meet the treatment standards. In addition to billing audits, a quality audit is a qualitative check of medical services from the first step, i.e., diagnosis, to the end of treatment. Such audit helps to control the standard of care, as well as help improve the quality of the service system in the future. For further details, it is advised to learn from the Audit System for the Universal Coverage Scheme (UCS) in Thailand.

8

# BIG DATA
## ON CANCER: CANCER REGISTRY (CR) AND CANCER PAYMENT REGISTRY (CAPR)

Cancer database in Thailand relies on information technology and the Cancer Registry was created to gather necessary data at both the hospital and community levels. This cancer registration data includes important information for planning in every dimension of cancer control and prevention at the national level, and relevant national and international high-quality research. Those studies are basic science, clinical trials, diagnostics treatment, clinical practice guidelines (CPG), medical cost, and information on specialist. Once the information has been collected, the data are stored systematically and ready for further distribution. The Cancer Registry helps to illustrate the epidemiology of cancer in the country, conditions of each cancer, incidence, survival rate, mortality rate, and the trend of cancer in each community. The data from the Registry can also be used to study causes and risk factors for cancer, plan for cancer prevention, area-based planning, and patient care. Therefore, the Cancer Registry information is useful to both the patients themselves and society.[1]

**TO ILLUSTRATE THE EPIDEMIOLOGY OF CANCER IN THE COUNTRY, CONDITIONS OF EACH CANCER, INCIDENCE, SURVIVAL RATE, MORTALITY RATE, AND THE TREND OF CANCER IN EACH COMMUNITY**

In order to encourage healthcare units to record cancer interventions into the Cancer Registry, the NHSO Working Group on Cancer Registration developed the Cancer Payment Registry (CaPR) in 2015. It is a part of the e-Claim system, by connecting the records of cancer patients with reimbursement. The information consisting of personal information, pathological examination results, cancer diagnosis, treatment, drug formulas, and cancer staging.[15]

However, the use of CaPR systems by healthcare units was not successful. That is because the responsible person who records the data into the registry is not the specialist. Thus, he/she lacks knowledge and understanding of service data recording. Plus, this puts a heavy workload for data recorders, resulting in missing data or loss of case entry in the registry. This may lead to the consequence of the healthcare unit is not reimbursed. To address these shortcomings, the NHSO held a meeting to listen to comments for the development of the UCS cancer treatment information system on May 3, 2016. The meeting resolution was to suspend the use of the CaPR and the reimbursement procedure was changed by checking the list of drugs recorded in the e-Claim. If non-essential drug or drug out of the protocol is used, then that case is coded as a non-protocol treatment. Finally, a new mechanism of reimbursement was introduced on April 24, 2017. Healthcare units record treatment through the Drug Catalog to check for on-top reimbursement for drugs and submit the record via e-Claim Offline. The record is then cross-checked with the cancer code of ICD and drugs used. However, this system yields no pathology and staging data of cancer of the patient.

The working group is still looking for ways to manage reimbursement data in the e-Claim system for epidemiological analysis and assessing the effectiveness of treatment. There are plans to link the database with the National Cancer Institute to retrieve information on the pathology and stage of the disease.

**CAPR AND THE REIMBURSEMENT PROCEDURE WAS CHANGED BY CHECKING THE LIST OF DRUGS RECORDED IN THE E-CLAIM**

# 9

# BENEFIT FOR THE POPULATION AND THE HEALTHCARE UNIT

The result of continuous improvements in the benefits package and the quality of cancer treatment has led to more access to cancer treatment services over time. The data shows that, during 2014-17, the number of access increased from 440,000 to 570,000 visits. In addition, the number of patients being on palliative care and receiving morphine increased from 7,800 cases in 2013 10,000 cases in 2016.[31, 35-37] The statistics of the NLEM e (2) between 2014-18 show that treatment of cancer of the breast, lung, prostate, and CML type leukemia was constantly increasing.[37] (See Table 4.)



## ACCESS TO CANCER CARE AND TREATMENT FOR MEMBERS OF THE UCS: FY 2013-18

Table 4

| ITEM | FISCAL YEAR (FY) | | | | | |
|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| **ACCESS TO TREATMENT AND PROCEDURES** | | | | | | |
| Outpatients cancer treatment | - | 440,611 | 447,244 | 530,847 | 573,159 | - |
| HSCT procedures | - | 41 | 97 | 22 | 51 | 56 |
| Palliative care with morphine (patients)[a] | 7,847 | 9,477 | 9,347 | 10,755 | 12,629 | 16,814 |
| **NATIONAL LIST OF ESSENTIAL MEDICINES CATEGORY E(2): NEW AND CONTINUING CASES BY TYPE OF CANCER** | | | | | | |
| Invasive breast cancer | - | 5,041 | 6,000 | 9,074 | 8,447 | 8,543 |
| Invasive non-small cell lung cancer | - | 1,579 | 1,047 | 1,319 | 1,888 | 1,290 |
| Metastatic prostate cancer | - | 471 | 340 | 280 | 294 | 305 |
| Trastuzumab; early breast cancer | - | - | 352 | 1,063 | 1,537 | 1,335 |
| CML leukemia; cannot use Imatinib | - | - | 519 | 668 | 714 | 642 |
| CML leukemia; cannot use Nilotinib | - | - | 42 | 250 | 221 | 223 |

Remarks: (-) denotes no data reported

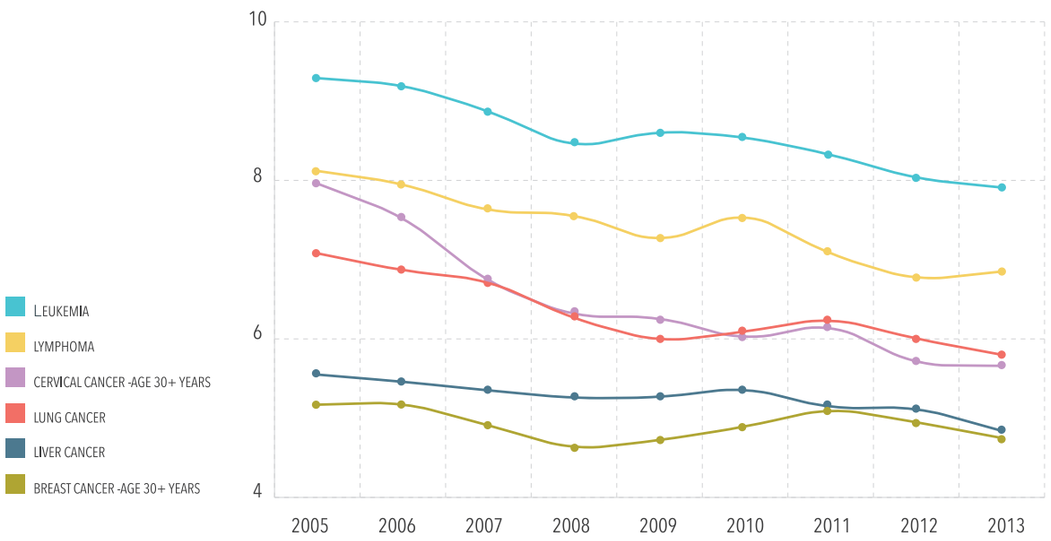
[a] Does not specify whether it is the number of only cancer treatments.

Sources: Cancer case fund disbursement information for UCS 2014-17 by the Office of Service Allocation and Compensation, accessed from https://www.nhso.go.th/FrontEnd/page-information_detail.aspx?ContentID=NjAwMDAwMjg1. and the FY 2013, 2014, and 2018 UCS data of the NHSO

In the case of inpatient, the average number of stays in the healthcare unit of patients with cancer of the liver, lung, breast, cervix, leukemia, and lymphoma decreased markedly from 2005 to 2013. That decline reflects the quality of effective treatment and management. In addition, the healthcare unit also reduced the cost on inpatient.[36] (See Figure 5.)

## AVERAGE NUMBER OF STAYS OF MEMBERS OF THE UCS BY DISEASE: FY 2005-13

Figure 5




Source: FY 2013 Universal Health Care Coverage Report by NHSO



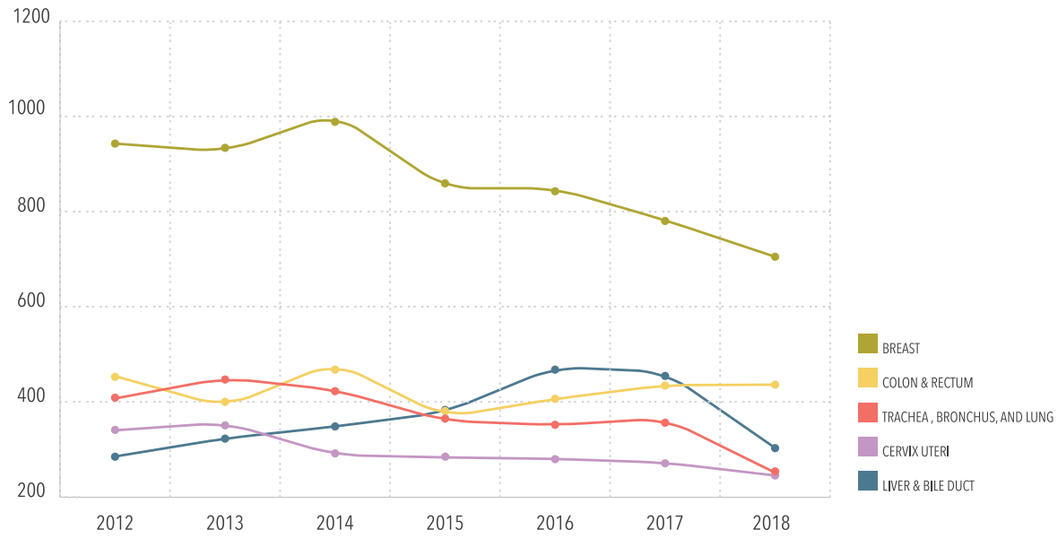
# 10

# CHALLENGES

The NHSO has expanded its programming to manage cancer that can be prevented by educating people to avoid or reduce risk factors and, for example, by vaccination and early detection by screening. Accordingly, the NHSO has broadened the benefits package to focus on the cost-benefit value of interventions to help reduce the number of new patients. Each visit for cancer treatment incurs a high cost, which can create a huge financial and mental health burden on patients and their families. In this regard, cancer that can be prevented consists of cancer of the cervix, lung, liver, breast, and colorectal cancer. However, data from the Cancer Registry at the hospital level during 2012-18 (Figure 6) shows that, while the number of new breast, lung and cervical cancer patients has decreased, new colorectal cancer patients have not. Therefore, the guidelines for the prevention and screening of those types of cancers should be developed to achieve greater efficient case management and to help reduce the number of new patients.

## NUMBER OF NEW CANCER PATIENTS (MALE AND FEMALE INCLUDED): 2012-18

Figure 6




Source: Cancer Registry, Hospital Level 2012-18, by the National Cancer Institute, Department of Medical Services, MOPH



# IT IS ALWAYS A CHALLENGE TO UPDATE THE PROTOCOL

Knowledge of medical care for cancer patients and the technology -- both medical devices and drugs – have improved rapidly over the decades. That said, these advanced methods are also more complicated to use. Therefore, it is always a challenge to update the protocol to keep pace with new medical technology. In addition, the NHSO and specialists must still develop protocols for cancer with increasing prevalence. According to the meeting of the UHC's Cancer Reimbursement Development Team on November 29, 2019, it pointed out that, cancers that prevalence are increasing that may need o develop protocol include oral cancer, ENT cancer, brain tumors, Leukemia Polycythemia Vera, and Essential thrombocythemia is increasing.

The management of the cancer database still needs to be improved. There is a plan to link the databases of the CaPR and the cancer database conducted by National Cancer Institute to get pathology and staging data that is currently missing from the CaPR. Moreover, the cancer database should cover all phases of case management, from prevention to palliative care, by integrating a single standard of cancer treatment. When that is complete, the database of all three major public health insurance systems should also be linked to ensure continuity of treatment when patients change their insurer.

# TO KEEP PACE WITH NEW MEDICAL TECHNOLOGY

# APPENDIX

Table A. 1

## CAPACITY OF CHEMOTHERAPY OR HORMONE THERAPY HEALTHCARE UNITS

Source: NHSO Guide to Reimbursing Expenses for Public Health Services FY 2020

### LEVEL 1
**CHEMOTHERAPY PRESCRIBING, PREPARING, AND ADMINISTRATING**

### LEVEL 2
**CHEMOTHERAPY PREPARING AND ADMINISTRATING**

### LEVEL 3
**CHEMOTHERAPY ADMINISTRATING**

## AREA

- Laboratory to assess patients before prescribing chemotherapy
- Chemotherapy preparation room, clean room / separated room
- Separate administration room for outpatients
- Blood bank suppling sufficient blood components
- Outpatient examination room

- Chemotherapy preparation room, clean room / separated room
- Separate administration room for outpatients

- Separate areas for chemotherapy administration

## FACILITY

- Aseptic chemotherapy cabinet, Isolator or Biosafety cabinet
- Personal protective equipment
- Closed containers for transporting chemotherapy
- Spill kit at the chemotherapy warehouse and the chemotherapy and mixing room
- Beds or chairs providing adequate chemotherapy services
- Safe cabinet for storing mixed medicine that is clearly labeled

- Same qualifications as Level 1

- Tools for administrating chemotherapy as well as Level 1 or 2
- No need for an aseptic chemotherapy preparation cabinet, Isolator or Biosafety cabinet



### LEVEL 1
**CHEMOTHERAPY PRESCRIBING, PREPARING, AND ADMINISTRATING**

### LEVEL 2
**CHEMOTHERAPY PREPARING AND ADMINISTRATING**

### LEVEL 3
**CHEMOTHERAPY ADMINISTRATING**

## PERSONNEL

- Medical specialist as follows:
  1) Onco-hematologist
  2) Hematologist
  3) Surgical oncologist
  4) Gynecologic oncologist
  5) Pediatric hematologist
  6) Radiologist

*Remarks: If there is no specialist in Item 1-6, then substitute with a surgeon or internist who has trained for chemotherapy or has had experience in counseling and prescribing chemotherapy for breast cancer and colon cancer for at least 3 years*

- Pharmacists trained for the Pharmacy & Chemotherapy course
- Personnel responsible for transporting chemotherapy
- Chemotherapy nurse

- Doctor trained for chemotherapy administration courses or have at least 3 years of experience in prescribing chemotherapy in the relevant disease
- Pharmacists trained Pharmacy & Chemotherapy course
- Personnel responsible for transporting chemotherapy
- Chemotherapy nurse

- Doctors trained for the chemotherapy administration course
- Pharmacist who is responsible for monitoring and caring for patients.
- Chemotherapy nurse

## SERVICES

- Drug depot and chemotherapy list
- Drug mixing and drug labeling processes
- Inventory control
- Drug delivery and storage of mixed drugs
- The process of educating patients before, during and after chemotherapy
- Standard double checking procedure for chemotherapy
- The process of surveillance, prevention, management, and treatment of allergic reactions or side effects from chemotherapy
- Process for handling and cleaning in the event of an accident, spilled medicine
- Chemical waste disposal process

- Same qualifications as Level 1
- Prescribe chemotherapy treatment from Level 1 healthcare units

- Same qualifications with Level 1 or 2.
- Prescribe chemotherapy treatment from Level 1 healthcare units
- Process of sending and collecting mixed drugs from Level 1 or 2 healthcare units

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# MANAGEMENT OF CANCER UNDER THE UNIVERSAL HEALTH COVERAGE SCHEME

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


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