Research Office
Legislative Council Secretariat

Fact Sheet
Cancer strategy in Taiwan

FS07/18-19

1. Introduction

1.1 In Taiwan, cancer has been the top leading cause of deaths in the past few decades. Since 2005, the Taiwanese government has implemented the National Cancer Prevention and Control Programme ("the Cancer Programme") for the prevention, early detection, diagnosis and treatment of cancer, and palliative care of cancer patients, and positive outcomes have been attained. In 2017, the expenditure on cancer medical services accounted for 11.6% of the expenditure of the National Health Insurance programme ("NHI").[1, 2] At the request of the Subcommittee on Issues Relating to the Support for Cancer Patients, the Research Office has prepared this fact sheet to provide an overview of the Cancer Programme in Taiwan and the outcomes achieved after implementation of the Programme.

2. Cancer prevention and control programme in Taiwan

2.1 According to the Ministry of Health and Welfare ("MOHW") (衛生福利部), the age-standardized cancer incidence rate[3] had increased from 191.6 per 100 000 population in 1996 to 296.7 in 2016 with the incidence rate peaking at 303.8 in 2014. The top five most common cancers diagnosed for new cases in 2016 were colorectal, lung, breast, liver and oral cancers.[4]

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1 NHI is a mandatory social insurance programme to cover the medical and medication costs of the Taiwanese people. The programme is financed by premiums contributed by the insured, employers and the government.

2 See 衛生福利部 (2018).

3 The age-standardized incidence rate was calculated according to the World Health Organization's standard world population age-structure in 2000.

4 See 台灣癌症登記中心 (2019) and 衛生福利部國民健康署 (2018).

On the other hand, the age-standardized cancer mortality rate[5] had decreased gradually from 143.5 to 123.4 per 100 000 population between 1996 and 2017.[6] In 2017, about 48 037 persons died of cancer, accounting for 28% of all deaths. The top five fatal cancers in 2017 were lung, liver, colorectal, breast and oral cancers.

2.2 In view of the rising incidence of cancer and the growing cancer burden, MOHW has enhanced its efforts on cancer prevention and control since the early 2000s. The **Cancer Control Act** (癌症防治法) enacted in 2003 has provided the legislative framework for strengthening the cancer prevention and control system covering cancer research, cancer patient registry, and provision of screening, diagnosis and treatment services. Pursuant to the Act, the Taiwanese government has established the **Cancer Prevention and Control Policy Commission** (癌症防治政策委員會)[7] to formulate cancer prevention and control policy, evaluate the cancer control budget, and review related matters such as manpower, guidelines on cancer diagnosis and treatment, and cancer screening projects.

2.3 In accordance with the Cancer Control Act, the Taiwanese government launched the first comprehensive Cancer Programme in 2005 and updated the Programme subsequently in 2010 and 2014. The long-term goal of the Programme is to reduce the cancer incidence and mortality rates through the core strategies to (a) promote **primary prevention** of cancer; (b) extend the coverage and encourage adoption of **cancer screening** to facilitate early detection and treatment of cancer; and (c) enhance the capacity and quality of **cancer treatment and palliative care services**. The strategic focus varied in different phases of the Cancer Programme as the cancer control system evolved and progress was achieved over the years. In the Programme updated in 2014, the focus has shifted from treatment and early detection to prevention. The latest phase of the Programme is set to be launched later in 2019.

2.4 MOHW sets out an annual budget for carrying out the Cancer Programme. In 2018, MOHW budgeted NT$4.88 billion (HK$1.28 billion) in

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[5] The age-standardized mortality rate was calculated according to the World Health Organization's standard world population age-structure in 2000.

[6] See Health Promotion Administration, Ministry of Health and Welfare (2018a) and Ministry of Health and Welfare (2019).

[7] The Cancer Prevention and Control Policy Commission is convened by the Minister of Health and Welfare and comprises members including academics, cancer experts, and representatives of medical schools, health research institutes and social institutions.

total for implementing the Programme, up from NT$3.37 billion (HK$885.8 million) in 2014. Of the total budget in 2018, 80% was allocated for providing and enhancing cancer screening services, 17% for improving the cancer treatment and palliative care system, and 2% for primary cancer prevention.

Primary prevention of cancer

2.5 Since the Cancer Programme was launched in 2005, the health promotion authority, **Health Promotion Administration** (衛生福利部國民健康署) ("HPA")[8] under MOHW has stepped up the cancer prevention efforts by addressing the major lifestyle and behavioural risk factors such as smoking, betel nuts chewing,[9] unhealthy diet, physical inactivity and obesity through various health promotion and education programmes. As for the prevention of hepatitis B and liver cancer, the Taiwan Centers for Disease Control (衛生福利部疾病管制署) has implemented the universal hepatitis B virus ("HBV") vaccination programme for infants since 1984. In late 2018, HPA also rolled out a programme to provide free human papillomavirus ("HPV") vaccinations for junior high school girls for preventing cervical cancer.[10]

Cancer screening

2.6 HPA has implemented the National Cancer Screening Programme (the "Screening Programme") as a major strategy to promote early detection of cancers, offering **free screening services for four major types of cancer**, namely breast, cervical, colorectal and oral cancers. According to HPA, these four types of cancer account for about one-third of all new cancer cases. Research evidence has also indicated that widespread screening contributes to reduction in cancer incidence and mortality rates. For example, mammograms could reduce breast cancer mortality rate by 20%-30%, and pap smears could reduce incidence and mortality rates of cervical cancer by 60%-90%.[11] The details of the Screening Programme are summarized in **Table 1**.

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[8] HPA, previously known as the Bureau of Health Promotion before MOHW was established in 2013, is responsible for health promotion and prevention of non-communicable diseases. Its major duties include planning, executing and supervising policies related to the prevention and control of cancer and other major non-communicable diseases.

[9] Chewing betel nuts is a risk factor of oral cancer.

[10] Previously, HPA had mainly provided subsidized HPV vaccination for specific target groups such as females from families with low to medium-low income.

[11] See Health Promotion Administration, Ministry of Health and Welfare (2018a).

Table 1 — Cancer screening services covered under the National Cancer Screening Programme

Type of cancer	Screening service and targets	Participation rate
Breast cancer	• **Target:** (a) females aged 45-69; and (b) females aged 40-44 whose close relatives have ever been diagnosed with breast cancer.(1) • **Service:** one mammogram checkup every two years.	• In 2015-2016, about 1.56 million or **38.0%** of females aged 45-69 had taken up breast cancer screening in the two years before enumeration, up from 29.5% in 2010-2011.
Cervical cancer	• **Target:** females aged 30 and above. • **Service:** one pap smear test at least once every three years.	• In 2013-2016, about 3.8 million or **55.2%** of females aged 30-69 had taken up cervical cancer screening in the three years before enumeration, decreasing from 59.1% in 2010-2012.
Colorectal cancer	• **Target:** individuals aged 50-74.(2) • **Service:** one faecal immunochemical test every two years.	• In 2015-2016, about 2.4 million or **40.7%** of individuals aged 50-69 had taken up colorectal cancer screening in the two years before enumeration, up from 32.2% in 2010-2011.
Oral cancer	• **Target:** (a) individuals aged 30 and above with smoking habit or those having ever chewed betel nut as a habit; and (b) aborigines aged between 18 and 30 having ever chewed betel nut as a habit. • **Service:** one oral mucus checkup every two years.	• In 2015-2016, about 1.65 million or **56.3%** of individuals aged 30-69 with smoking or betel nut chewing habit had taken up oral cancer screening in the two years before enumeration, up from 45.6% in 2010-2011.

Notes: (1) The breast cancer screening service only covered females aged 50-69 when it was first covered under the Screening Programme in 2004. The coverage of the service was expanded in 2009 to include females aged 45-49 and in 2010 to include those aged 40-44 with close relatives having been diagnosed with breast cancer as well.

(2) The colorectal cancer screening service only covered individuals aged 50-69 when it was first launched in 2004. The coverage of the service was expanded in 2013 to include individuals aged 70-74 as well.

Sources: Health Promotion Administration, Ministry of Health and Welfare (2018a and 2018b).

2.7 In addition, HPA has set up a **cancer screening database** to monitor the effectiveness of the Screening Programme. With the provision of various screening indicators such as detection rate and referral rate, the database provides valuable inputs for formulating cancer prevention strategies. Based on the evaluation of the data collected, HPA has over the years adjusted the coverage of the respective screening services to improve their effectiveness. For example, the breast cancer screening service, which only covered females aged 50-69 when first introduced in 2004, was expanded in 2009 to include females aged 45-49 as well, and in 2010 further include those aged 40-44 with close relatives having been diagnosed with breast cancer.

2.8 In order to **boost the take up rate** of the screening services, HPA has launched mass communication programmes to promote awareness and understanding of the screening services among the public, and expanded the service accessibility to include the regional public health centres as well as private clinics and hospitals. HPA has also subsidized private hospitals to integrate cancer screening into daily practice by establishing a cancer screening reminder system in outpatient service and providing one-stop referral service for patients with positive screening results.

2.9 The Screening Programme is funded by the Health and Welfare Surcharge of Tobacco Products (菸品健康福利捐) which is imposed on all tobacco products.[12] In 2018, HPA budgeted NT$3.5 billion (HK$917.5 million) for the provision of screenings for the four specific types of cancer, up from NT$2.3 billion (HK$607.7 million) in 2014. Funding allocated for providing breast cancer screening service was the highest, accounting for 55% of the total budget in 2018.[13]

Diagnosis and treatment of cancer

2.10 In Taiwan, cancer diagnosis and treatment services are provided in both public and private hospitals.[14] Under the Cancer Programme, HPA has strived to enhance the survival rate and quality of life of cancer patients by improving the quality of diagnosis and treatment services, and strengthening

[12] The surcharges collected are used, among others, to subsidize the provision of cancer screening services; provision of treatment for patients with rare diseases; and payment of NHI premium for the disadvantaged.

[13] See 衛生福利部 (2015).

[14] In 2016, there were 490 hospitals in Taiwan, of which 83% were private hospitals and 17% were public hospitals.

the coordination of care and support provided to patients. Since the early 2000s, HPA has subsidized hospitals to implement cancer care quality improvement plan (癌症診療品質提升計劃) with the setting up of a cancer care quality team in each participating hospital, and to enhance services which are not covered by NHI such as cancer registration, oncology nurse case management service[15] and one-stop cancer resources centres.[16] HPA has also implemented the **cancer treatment quality accreditation programme** (癌症診療品質認證作業計劃) since 2008 to certify hospitals with strong medical teams and high quality of care. Those handling at least 500 new cancer cases in a year are eligible to apply for accreditation.[17] As at January 2019, 58 hospitals had attained accreditation under the programme, of which 26% were public hospitals and 74% private hospitals.

2.11 Meanwhile, patients' **medical and medication expenses** on cancer diagnosis and treatment are covered by NHI. Cancer patients issued with a catastrophic illness certificate (重大傷病證明)[18] are exempted from making any co-payment for inpatient and outpatient care. In 2017, about 428 000 cancer patients were holding a catastrophic illness certificate, accounting for about 63% of cancer patients treated. Cancer patients with stable conditions requiring less frequent follow-up consultation may also be issued with a "chronic illness refill prescription" (慢性病連續處方箋). These patients will be exempted from making co-payment for medication expenses if they are given a prescription of more than 28 days of medicine in the second and third refills.[19]

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[15] The service was launched in 2014 aiming to promote early treatment of and coordination of cancer care for newly diagnosed patients. Under the service, the case manager will proactively approach newly diagnosed patients to provide relevant information, treatment advice, psychological support and other relevant support services within the first year after diagnosis and encourage patients to take up treatment as soon as possible.

[16] Hospitals obtaining subsidy from HPA have joined forces in setting up a network of one-stop cancer resources centres which is designed to provide information on cancer screening, diagnosis and treatment services, and provide referral for social support services for patients and their carers.

[17] The hospitals are accredited against a set of quality standards on domains such as (a) organization policy and management of cancer care quality and clinical procedures; (b) establishment of a cancer registry; (c) provision of diagnosis and treatment according to evidence and guidelines; and (d) establishment of multi-disciplinary team care models.

[18] Patients diagnosed as having a condition which is classified as a catastrophic illness by MOHW may apply for a catastrophic illness certificate. Patients with a catastrophic illness certificate do not need to pay a co-payment for outpatient or inpatient care within the certificate's validity period. For patients of most types of cancer, the catastrophic illness certificate is valid for five years.

[19] The refill prescription can be filled up to three times, with 30 days of medicine at most per refill.

2.12 As for the **approval of new cancer drugs**, the Taiwan Food and Drug Administration ("TFDA") (衛生福利部食品藥物管理署), the authority for approving and licensing new drugs,[20] indicated that about 33 new cancer drug licenses were issued in 2017. This marked a 15% increase compared to 2016, probably due to TFDA's efforts to expedite the drug approval process with a view to improving patients' accessibility to innovative drug products.[21] In 2017, TFDA launched a new mechanism where applications with incomplete information will not be filed, which helps facilitate the review process by reducing unnecessary reviews.

Hospice and palliative care

2.13 MOHW has promoted the awareness and usage of hospice and palliative care for supporting and improving the quality of life of terminally-ill cancer patients since the early 2000s. Meanwhile, the rights of terminally-ill patients, including cancer patients, are protected by the Hospice Palliative Care Act (安寧緩和醫療條例)[22] enacted in 2000 and the Patient Right to Autonomy Act (病人自主權利法)[23] enacted in 2016. Hospice care services are provided in various settings including **dedicated hospice care wards**, other inpatient wards under a **shared care service model** (安寧共同照護), and **at the patient's home**. Specifically, the shared care service model allows terminally-ill patients to receive care jointly from the cancer treatment medical team and the hospice care medical team in the same hospital, which helps address the shortage of dedicated hospice wards while enabling patients to obtain proper end-of-life care.

2.14 Over the past two decades, HPA has strengthened the capacity of hospice care services by subsidizing hospitals to expand shared care services and conduct relevant staff training. As a result of the promotion and service

[20] Drug importers or manufacturers are required to register their products with and obtain market approval from TFDA before they can sell or manufacture their products in Taiwan. Applicants for registration and market approval may be required to conduct local clinical trials of the drug where necessary.

[21] See Ministry of Health and Welfare (2018).

[22] According to the Hospice Palliative Care Act, terminally-ill patients' will regarding treatment of their illness and their right to "natural" and dignified death with the withholding of life-sustaining treatment are respected and protected.

[23] The Patient Right to Autonomy Act safeguards the rights of terminally-ill patients to be informed of their medical conditions and treatment options, and to make advance care planning decisions such as acceptance or refusal of life-sustaining treatment.

improvement efforts of MOHW, the usage rate of hospice services among cancer patients in their last year of life increased markedly from 7% in 2000 to 58.7% in 2016.[24] Patients can reimburse the service costs under NHI.

3. Observed outcomes

3.1 Since the implementation of the Cancer Programme, the Taiwanese government has attained achievements in preventing and controlling cancer. The health promotion and education efforts of MOHW had contributed to a significant decline of the rates of smoking and betel nut chewing between 2004 and 2017 (see **Table 2**). In addition, the universal HBV vaccination programme for infants has contributed to the significant reduction of the HBV carrier rate among children under six from 10.5% in 1989 to less than 0.8% recently.[25] Regarding the early detection of cancer, the heavy promotion efforts of and resources allocated by MOHW since 2005 have led to growth in the participation rates of breast, colorectal and oral cancer screenings (see Table 1). In 2017, about 5.1 million screenings were carried out under the Screening Programme, resulting in the detection of 10 000 cases of cancer and 50 000 cases of pre-cancer, and saving 60 000 lives.[26]

Table 2 — Rates of smoking and betel nut chewing between 2004 and 2017

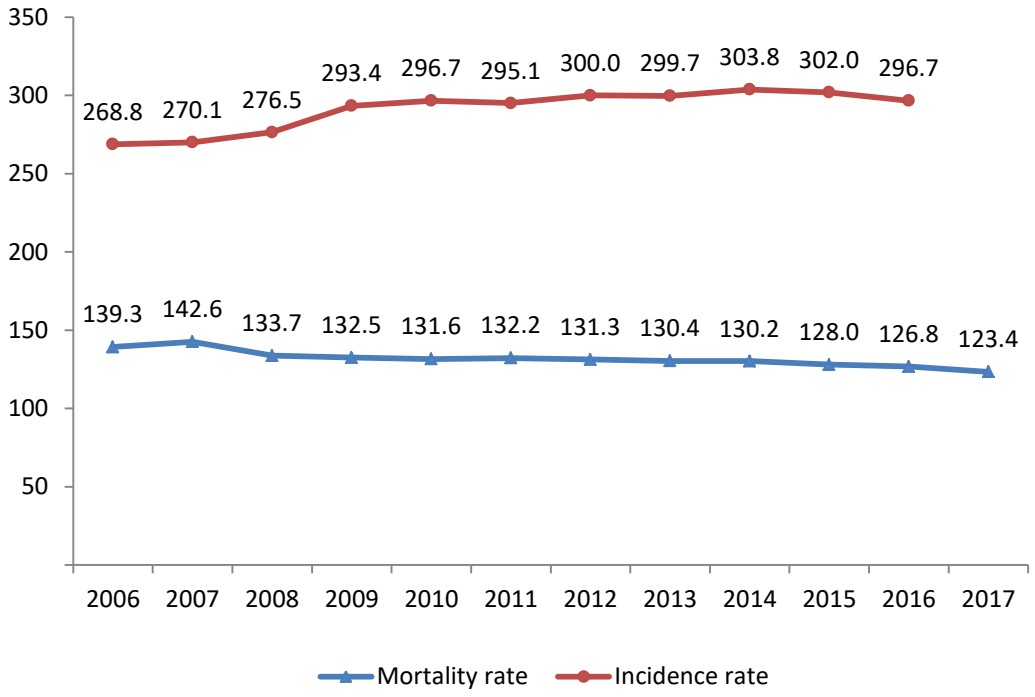
	Males (%)	Females (%)
Smoking rate		
2004	42.9	4.6
2017	26.4	2.3
Betel nut chewing rate		
2007	17.2	-
2012	-	0.6
2017	6.1	0.3

Source: Health Promotion Administration, Ministry of Health and Welfare (2019).

[24] See 衛生福利部國民健康署 (2016).
[25] See Health Promotion Administration, Ministry of Health and Welfare (2019).
[26] See Health Promotion Administration, Ministry of Health and Welfare (2018a).

3.2 In addition, the Taiwanese government has made positive progress in reducing the age-standardized cancer mortality rate from 139.3 per 100 000 population in 2006 to 123.4 in 2017. The age-standardized cancer incidence rate has also stabilized at round 300 per 100 000 population (see **Figure 1**).[27] With the exception of cervical cancer, the relative survival rates[28] of other major types of cancer had continued to improve after the Cancer Programme was launched, with larger extent of improvement observed for liver and lung cancers (see **Table 3**).

Figure 1 — Cancer incidence and mortality rates per 100 000 population



Note: The cancer incidence rate for 2017 is not yet available.

Sources: Health Promotion Administration, Ministry of Health and Welfare (2018b), Ministry of Health and Welfare (2019) and 衛生福利部國民健康署 (2019).

[27] See 台灣癌症登記中心 (2019) and 衛生福利部國民健康署 (2018).

[28] Relative survival rate refers to the probability of being alive for a given amount of time after diagnosis, compared with the experience of the general population.

Table 3 — Relative five-year survival rates of major types of cancer

Relative five-year survival rates	1997-2001 (%)	2004-2008 (%)	2011-2015 (%)
Breast cancer	81.8	86.7	89.4
Cervical cancer	78.5	75.2	70.5
Colorectal cancer	56.2	60.1	63.5
Oral cancer	48.0	52.9	55.5
Liver cancer	19.0	24.7	31.7
Lung cancer	12.3	13.8	24.3
All cancers	**46.4**	**50.1**	**55.8**

Source: Health Promotion Administration, Ministry of Health and Welfare (2018b).

3.3 Building on the success of the previous three phases of the Cancer Programme, the latest phase of the Programme which would be launched in 2019 would further promote primary cancer prevention, improve the quality of screening and treatment services, and develop patient-centred cancer services.

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