

CONTENTS

INTRODUCTION	3
BACKGROUND	3
Objective	8
Pillars	8
PILLAR 1: Emphasize cancer prevention.....	9
Recommendation 1.1: All APEC member economies emphasize Environment-Focused Interventions.....	10
Recommendation 1.2: APEC economies commit to providing access to cancer-preventive vaccines to eligible citizens and explore multiple payment mechanisms to ensure sustainable financing.....	11
Recommendation 1.3: APEC economies establish domestic cancer registries and work towards seamless information-sharing and data management with other members, in accordance with existing International Agency for Research on Cancer (IARC), the World Health Organization (WHO), and the International Association of Cancer Registries (IACR) guidelines.....	11
PILLAR 2: Implement early cancer detection programs for effective screening and diagnosis	12
Recommendation 2.1: Relevant domestic agencies with responsibility for cancer care implement early detection programs for cancer, which will comprise the value chain from consultations (pre- and post-diagnosis), early diagnosis, and adoption of cancer screening, with necessary financial support, depending on resource availability.....	14
Recommendation 2.2: APEC economies create cancer awareness campaigns to educate stakeholders on cancer symptoms, and the viability and availability of screening programs and early diagnosis for certain cancers	15
Recommendation 2.3: Relevant APEC domestic agencies develop adequate infrastructure for early diagnosis and screening and train healthcare professionals to execute effective early detection programs.....	15
PILLAR 3: Make cancer treatment, rehabilitation, and palliative care services equitable and accessible to all individuals.....	17
Recommendation 3.1: APEC economies develop cancer guidelines for domestic screening, diagnosis, treatment, rehabilitation, and palliative care, including expedient and well-established treatment guidelines for those diagnosed with cancer.....	18
Recommendation 3.2: APEC economies ensure equity in access to cancer treatment, management, and rehabilitation services, including addressing elements such as health literacy, cultural safety, and language needs for vulnerable groups	19

Recommendation 3.3: APEC economies emphasize utilization of digital tools and infrastructure in improving cancer treatment and services, and facilitating patient care 19

PILLAR 4: Implement robust governance systems and stakeholder engagement processes for successful execution of NCCPs, alongside tools to evaluate progress in cancer outcomes 21

Recommendation 4.1: APEC member economies create an APEC Cancer Control Dashboard to drive policy and decision-making processes, comprising metrics such as vaccination rates, patient demographics, cancer characteristics, stage of disease, treatment, and outcomes, among others, which can be adapted to NCCPs..... 22

Recommendation 4.2: APEC economies institutionalize mechanisms for multi-stakeholder engagement in decision-making in support of the NCCP..... 23

Recommendation 4.3: All APEC member economies introduce value assessment frameworks and adopt science-based policy and decision-making processes that incorporate latest knowledge and data 23

Recommendation 4.4: APEC economies examine the nature and adequacy of public funding for NCCPs, with a view to maximize government funds, generate new revenue, and minimize future expenses 23

ACKNOWLEDGEMENTS 25

INTRODUCTION

Developed through consultations with representatives from APEC member economies, this report on *Best Practices and Recommendations for APEC Collaboration on Cancer Control* outlines comprehensive strategies for developing, enhancing, and strengthening cancer control policy programs across the Asia-Pacific. By taking a holistic and innovative approach to chronic disease challenges, APEC economies can reduce cancer incidence, cancer mortality, and improve quality of life after cancer for all individuals, thereby creating healthier populations, improving the economic and social inclusion of their citizens, and accelerating economic growth. Investing in health systems with dedicated cancer control policies will enable accessible, affordable, consistent, and effective cancer treatment and screening, which is particularly crucial as economies emerge from the COVID-19 pandemic.

APEC has continuously emphasized adopting a collaborative approach for preventing and managing cancer at the *High Level Meeting on Health and the Economy (HLMHE) 2020*, and the *North Star: A 2030 Strategy for Enabling Resilient Health Systems and Promoting the Health of our Populations in the Asia-Pacific*. The North Star 2030 strategy, in particular, calls for “strengthened collaboration across the region by demonstrating the economic imperative” of “preventing and managing non-communicable diseases,” including cancer. This Action Plan paves the way for meaningful collaboration on cancer control efforts which will make a substantive difference in reducing the disease burden of cancer in the region.

BACKGROUND

The Cancer Burden in APEC Economies

Cancer has long afflicted Asia-Pacific economies in a uniquely burdensome, challenging way. Cancer is one of the top three leading causes of death in most APEC economies.¹ Asia is also home to 50% of total global cancer incidence.² In 2018, there were 8.8 million new cancer cases across the region, resulting in 5.5 million cancer-related deaths.³ Moreover, the trends for the future are not encouraging. By 2030, against a backdrop of an ageing population and only 9% population growth in the region, cancer incidence in APEC is expected to increase by nearly 35% (to 11.8 million cases annually), with a 40% increase in expected mortality.⁴

Beyond the direct impact to patients and families, cancer also poses serious challenges to healthcare systems, and more broadly, the economic and social wellbeing of economies across Asia. Numerous studies have demonstrated the loss of productivity and financial

¹ *Our World in Data – Causes of Death*; <https://ourworldindata.org/causes-of-death>; December 2019; Accessed 13 April 2022

² *Economist Intelligence Unit - Cancer Preparedness in Asia-Pacific*; https://worldcancerinitiative.economist.com/pdf/Roche-cancer-preparedness-in-asia/Roche_Cancer_White_paper.pdf; June 2020; Accessed 13 April 2022

³ *Ibid.*

⁴ *Ibid.*

burden that the disease has on economies (e.g., from lost labor, lost expertise, presenteeism, and absenteeism). In China, for example, one estimate found the productivity lost in 2012 due to premature cancer mortality equivalent to USD 28 billion.⁵ A 2020 MOH-World Health Organisation joint report notes that non-communicable diseases, including cancer, cost the Malaysian economy approximately RM 8.91 billion, equivalent to about 0.65% of its GDP, due to loss in productivity. The health burden, due to disability and loss of healthy life years, is estimated to be around RM 100.79 billion, equivalent to 7.35% of its GDP. Yet cancer investment in the Asia-Pacific remains remarkably low. According to the Swedish Institute for Health Economics (IHE), higher-income economies in the Asia-Pacific spend between 5 to 9% of total health spending on cancer care, while this figure can be as low as 1 to 2% in middle-income economies.⁶ Furthermore, this investment has primarily focused on treatment, although up to 40% of cancers might be preventable.⁷ An emphasis on cancer prevention could save millions of lives and billions of dollars annually.

Government Policy Interventions Can Save Lives

The encouraging news is that targeted policy interventions – including strategic planning, government investment, regulatory pathways, and coordination among public and private stakeholders – have been proven to *save lives*. The American Cancer Society noted,⁸ for example, that cancer mortality in the U.S. has steadily fallen by 32% since its peak in 1991, and had its largest single-year drop ever reported – 2.4% – in 2018, which equates to roughly 295,000 cancer deaths averted that year and over 2.9 million fewer deaths overall. Experts attribute this sharp reduction in cancer mortality to coordinated action on prevention and lifestyle factors (e.g., tobacco control), early screening, deployment of innovative treatments, and other proven cancer control measures. A driving factor in this progress has been the reduction in the mortality rate for lung cancer – which kills far more people than any other tumor and which is also a leading cause of cancer-related death in the Asia-Pacific. In Chinese Taipei, the standardized mortality of all cancers dropped from 131.6 per 100,000 population in 2010 to 117.3 in 2020, showing a long-term trend of steady decline. The five-year survival rate for all cancers in Chinese Taipei rose from 50.2% in 2005-2009 to 60.6% in 2015-2019, an increase of 10.4%. Key to these promising results are coordinated and sustained policy interventions.

Through targeted cancer control measures, dramatic gains in avoiding premature deaths from cancer could be achieved in Asian economies. Data modeling suggests that coordinated

⁵ *Productivity losses due to premature mortality from cancer in Brazil, Russia, India, China, and South Africa (BRICS): A population-based comparison*; <https://pubmed.ncbi.nlm.nih.gov/29353153/>; April 2018; Accessed 13 April 2022

⁶ *Healthcare spending on cancer in Asia-Pacific*; <https://ihe.se/en/publicering/health-spending-on-cancer-in-asia-pacific/#:~:text=Limited%20evidence%20suggests%20that%20health,2%25%20of%20total%20health%20spending.>; June 2021; Accessed 17 May 2022

⁷ *More than 40% of cancers may be preventable*; <https://www.cancerhealth.com/article/40-percent-cancers-may-preventable>; 28 November 2017; Accessed 13 April 2022

⁸ *American Cancer Society*; "[Cancer Statistics, 2022](#)", and "[Cancer Statistics 2021](#)"; Accessed 23 March 2022.

action and sustained measures could lead to a 29% drop in cancer mortality in Viet Nam, where cancer now accounts for nearly 20% of all deaths⁹, or in Indonesia, which lost over 207,000 of its citizens to cancer in 2018 alone.¹⁰

Remarkable progress has been made in the fight against cancer, but preventable deaths will continue unless governments, industry, and civil society work together in a coordinated fashion. There is simply no defense for inaction, particularly when the science and data prove that **policy interventions – starting with strategic NCCPs and their *effective* implementation – can save lives across Asia.**

The Role of NCCPs

The World Health Organization (WHO) describes NCCPs as public health programs designed to reduce the number of cancer cases and deaths, and improve quality of life of cancer patients by “implementing systematic, equitable, and evidence-based strategies for prevention, early detection, diagnosis, treatment, and palliation using available resources.” The WHO has noted that “effective programs in comprehensive cancer control are needed” to lessen the disease burden and meet the UN's Sustainable Development Goals of decreasing premature mortality from non-communicable diseases and achieve universal health coverage (UHC). Accordingly, as part of its 2017 resolution on “cancer prevention and control in the context of an integrated approach,” the World Health Assembly urged member states to “integrate and scale up cancer prevention and control as part of responses to non-communicable diseases,” and to “develop, as appropriate, and implement NCCPs that are inclusive of all age groups; that have adequate resources, monitoring and accountability; and that seek synergies and cost-efficiencies with other health interventions.”

In its guidance, the United States Centers for Disease Control and Prevention has stated that comprehensive NCCPs must be specific to each economy or geographic region and based on accurate data collected on its population. They must deploy recognized best practices and strategies that have worked in that region or a similar one into a blueprint for action. Importantly, effective planning must be inclusive, engaging a broad range of stakeholders, and paired with domestic leadership. Finally, comprehensive programs must be “goal-oriented, realistic, carefully prepared, and appropriately funded through a participatory process in order to be effectively implemented,” according to the WHO.¹¹ Japan, for example, has implemented a comprehensive cancer control program and is on track to reduce premature cancer mortality by 45% by 2030, compared to 2000 data.¹² Similarly, Chinese

⁹ Economist Intelligence Unit - *Cancer Preparedness in Asia-Pacific*; https://worldcancerinitiative.economist.com/pdf/Roche-cancer-preparedness-in-asia/Roche_Cancer_White_paper.pdf; June 2020; Accessed 13 April 2022

¹⁰ Cancer Fact Sheets, <https://gco.iarc.fr/today/fact-sheets-cancers>; Accessed 22 July 2020.

¹¹ *Developing a NCCP*; <https://www.who.int/cancer/nccp/en/>; Accessed 13 April 2022

¹² *Cancer Country Profile 2020 – Japan*; https://www.who.int/cancer/country-profiles/JPN_2020.pdf?ua=1; 2020; Accessed 13 April 2022

Taipei's cancer control plan (4th phase, 2019-2023) aims to reduce premature cancer mortality by 5.98% by 2025 in individuals aged 30 to 70.

Challenges in the Asia-Pacific

Globally, over 80% of economies now have some form of a NCCP, an increase from just 60% in 2013. The Asia-Pacific region is similarly positioned, with most APEC economies having already developed or adopted a NCCP in some form. **Implementation, however, remains a key challenge.** There are far fewer economies with truly operational plans, and, as the Economist Intelligence Unit has noted, "*translating policy and planning into action*" appears to be a shortfall in many Asia-Pacific economies. Political will and competing domestic priorities, lack of resources, challenges in identifying financing, the need for capacity building and training, as well as educating the population and shifting citizen behavior are obstacles that can undermine even the most well-intended strategy.

Cancer also strikes low- and middle-income economies (LMICs) globally particularly hard. In 2020, the WHO warned that cancer incidence would rise as much as 81% in LMICs by 2040 due to a lack of investment in prevention and care¹³. Cancer mortality is also much higher,¹⁴ with LMICs accounting for approximately 70% of global cancer-related deaths¹⁵. Conversely, higher-income economies are statistically more likely to have an operational cancer control program, and therefore generally fare better in terms of preparation, implementation of strategies, and consequently, lower mortality rates. The pattern of excess cancer mortality also holds true for LMICs in the Asia-Pacific.¹⁶

The COVID-19 global pandemic has only intensified the need for robust implementation of strategic policy frameworks, including NCCPs. Many economies were slow to respond as they did not have an emergency preparedness plan for delivery of cancer care, particularly the LMICs.¹⁷ Early detection and screening efforts have been affected, concerned citizens have been reluctant to seek care, and hospitals have halted health care and procedure deemed "non-essential" to COVID-19 response. According to one report, 11 out of 17 Asian economies surveyed had to delay or suspend cancer prevention and screening services due to COVID-

¹³ WHO forecasts 81% cancer jump in low, middle-income countries; <https://www.france24.com/en/20200204-who-forecasts-cancer-jump-in-low-middle-income-countries>; 4 February 2020; Accessed 30 March 2022

¹⁴ Cancer Control in Low- and Middle-Income Countries: Is It Time to Consider Screening?; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6452918/>; 25 March 2019, Accessed 30 March 2022

¹⁵ How Should Low- and Middle-Income Countries Motivate Equity in Cancer Prevention and Control?; <https://journalofethics.ama-assn.org/article/how-should-low-and-middle-income-countries-motivate-equity-cancer-prevention-and-control/2020-02>; February 2020; Accessed 30 March 2022

¹⁶ Cancer Preparedness in Asia-Pacific: Progress Towards Universal Cancer Control; https://worldcancerinitiative.economist.com/pdf/Roche-cancer-preparedness-in-asia/Roche_Cancer_White_paper.pdf; June 2020; Accessed 31 March 2022

¹⁷ Contingency planning for cancer care in low- and middle-income countries during the COVID-19 pandemic: a rapid assessment for future disaster resilience; <https://ecancer.org/en/journal/article/1339-contingency-planning-for-cancer-care-in-low-and-middle-income-countries-during-the-covid-19-pandemic-a-rapid-assessment-for-future-disaster-resilience/abstract>; 6 January 2022, Accessed 17 May 2022

19.¹⁸ In addition, hospital systems and other medical providers have faced challenges to their continuity of operations and have had to divert resources, and supply chains for much-needed pharmaceuticals and other therapies have been disrupted. All these affect immunosuppressed cancer patients who are at disproportionately greater risk of COVID-19-related complications and death.

Some economies have leveraged telemedicine and teleconsultation to reduce patient exposure to COVID-19 infection, learning from successive waves of COVID-19, to ensure continued communication between healthcare providers and patients. The U.S., for instance, did not see a shutdown of care services with the second COVID-19 wave and the highly infectious Delta variant. Instead, its hospitals used technology to triage patients and identify those who may be missing appointments. Similarly, findings by the Asian National Cancer Centres Alliance and the Asia-Pacific Organisation for Cancer Prevention highlight that all participating institutions in the region had adopted “tele-oncology” in response to COVID-19. However, not all APEC economies have such capacity and resources to adapt at the pace that the spread of COVID-19 necessitates.

¹⁸ *The Impact of COVID-19 on Cancer Care in the Post Pandemic World: Five Major Lessons Learnt from Challenges and Countermeasures of Major Asian Cancer Centres*; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8286686/>; March 2021; Accessed 17 May 2022

Best Practices and Recommendations for APEC Collaboration on Cancer Control

Objective

Promote implementation of integrated and innovative NCCPs by all 21 APEC member economies to effectively address cancer burden, cancer risk factor burden and improve the quality of life of cancer patients through equitable cancer management that includes prevention, early detection, diagnosis and treatment, and palliative care and survivorship.

Upholding the following principles and broad strategies while seeking to achieve the objective:

- availability and quality treatment for all cancer patients;
- guaranteeing provision of medicines for specialized antineoplastic therapy and accompanying therapy for all cancer patients;
- expanding implementation of highly effective radiation, chemotherapeutic, and combined surgical treatment methods; and
- prioritizing implementation of innovative methods of targeted therapy and immunotherapy, and adopting an interdisciplinary approach to treatment strategies for every cancer patient.

Pillars

This report categorizes the *best practices and recommendations for APEC collaboration on cancer control* under the following “pillars”:

1. Emphasize **cancer prevention**;
2. Provide **effective and accurate screening and diagnostic tools** to detect cancer early;
3. Ensure equity and access **to treatment, rehabilitation, and palliative care**; and
4. Create **governance and systems** to drive execution of cancer control programs and evaluate progress.

Each pillar above is addressed in the following format:

- **Context**, to establish key issues that APEC economies face in implementation;
- **Recommendations**, for an achievable outcome; and
- **Best Practices**, for APEC economies to consider to accelerate progress.

PILLAR 1: Emphasize cancer prevention

Cancer prevention offers the greatest public health reward and the most cost-effective long-term method of cancer control, and should be a key component of all cancer control programs.¹⁹ Current research notes that approximately 40% of all cancers can be prevented solely by lifestyle changes, with most cancers linked to tobacco use, unhealthy diet, regular alcohol intake, and a sedentary lifestyle.²⁰ Lifestyle modification that contributes to cancer prevention should be considered in the context of its value to prevent other chronic, noncommunicable diseases, such as cardiovascular diseases, diabetes, and chronic respiratory diseases, and alcohol dependence. Governments have a key role in mitigating and eliminating other contributing factors outside of an individual's control. These include regulating them through excise taxes on tobacco products, implementing smoking bans, implementing standards and regulations related to exposure to carcinogens, radiation and air quality, and measures to reduce health inequities within a population.

In addition to primary cancer preventive measures, an effective NCCP must include secondary preventive measures, which promote screening and other initiatives designed to identify and treat cancer in its early stages. Thailand, for example, complements its National Cancer Control Programme with the "Promotion and Prevention" component of its Universal Coverage Scheme (USC), which establishes robust screening programs for cervical and colorectal cancers—two of the most preventable cancers. It has also included HPV in its national immunization program. All APEC economies have made similar commitments through their endorsement of the WHO's *Global Strategy to Accelerate the Elimination of Cervical Cancer* and the three steps within — vaccination, screening, and treatment.²¹ By 2050, implementation of all three steps could reduce cervical cancer incidence by more than 40% and save over 5 million lives globally.²² Long term implementation could eliminate cervical cancer completely. As of November 2021, 115 economies have introduced the HPV vaccine.²³

Health literacy and education are crucial to the success of both primary and secondary cancer preventive measures. This increases knowledge and awareness of the threat posed by cancer, preventive behaviors, screening tools, and available treatments. Future educational programs

¹⁹ World Health Organization, *National Cancer Control Programmes: Policies and Managerial Guidelines*; <https://apps.who.int/iris/handle/10665/42494>; 2002; Accessed 13 April 2022

²⁰ World Health Organization, *Cancer Control: Prevention Module*; <https://www.who.int/publications/i/item/cancer-control-prevention>; 2007; Accessed 13 April 2022

²¹ World Health Organization, *A cervical cancer-free future: First-ever global commitment to eliminate a cancer*, <https://www.who.int/news/item/17-11-2020-a-cervical-cancer-free-future-first-ever-global-commitment-to-eliminate-a-cancer#:~:text=eliminate%20a%20cancer-A%20cervical%20cancer%2Dfree%20future%3A%20First%2Dever%20global,commitment%20to%20eliminate%20a%20cancer&text=WHO's%20Global%20Strategy%20to,%3A%20vaccination%2C%20screening%20and%20treatment.>; 17 November 2020; Accessed 13 April 2022

²² Ibid.

²³ World Health Organization, *Global leaders call for cervical cancer elimination on Day of Action*; <https://www.who.int/news/item/17-11-2021-global-leaders-call-for-cervical-cancer-elimination-on-day-of-action>; 2021; Accessed on 13 April 2022

for cancer awareness may leverage more creativity through the use of art, drama, and technology, tailored to the target population. These same measures can reduce the stigma that comes with cancer diagnoses. Too often, cancer is seen as incurable and is associated with feelings of futility and hopelessness, undervaluing the benefits of preventive measures. On the contrary, some cancers detected in early stages are overwhelmingly curable, and multiple stakeholders must collaborate to fight the stigma around cancer and promote screening tools for populations with a higher incidence of cancer. These stakeholders include governments, community leaders, schools, the private sector, academia, non-governmental organizations, and more.

Only through a concerted and collaborative approach can preventive measures succeed. And given the remarkably diverse nature of the APEC region, a targeted approach, which first analyzes and evaluates current preventive measures, is critical for the success of an NCCP. Such an assessment is necessary to set priorities for evidence-based allocation of resources and to choose an approach best-suited for an individual economy. Regardless of the approach, APEC economies should acknowledge the increased return over time on investment associated with cancer prevention, which will decrease incidence of other chronic noncommunicable diseases.

Recommendation 1.1: All APEC member economies emphasize Environment-Focused Interventions

Best Practices:

- Full implementation of the WHO Framework Convention on Tobacco Control (FCTC), in accordance with resolution WHA56.1 and the Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-Communicable Diseases
- Routine evaluation of sale statistics, advertising strategies, and taxes imposed on products that contribute to increasing cancer risk, which may include tobacco, alcohol, sugar-sweetened beverages, and processed meats, among others, and conduct an evaluation of other environmental factors that may increase the risk of cancer
- Awareness campaigns and initiatives, including through partnerships with non-governmental organizations and private sector, to educate their populations on cancer-causing lifestyle habits and track health literacy rates

Success will see economies implement interventions aimed at preventing cancer, including initiatives to enhance the health literacy on cancer-causing lifestyle habits such as tobacco use, regular alcohol intake, obesity, and lack of physical activity, as well as measures to reduce exposure to carcinogens, radiation, poor air quality, and possible health inequities that may disproportionately increase cancer risk to segments of the population.

Recommendation 1.2: APEC economies commit to providing access to cancer-preventive vaccines to eligible citizens and explore multiple payment mechanisms to ensure sustainable financing

Best Practices:

- Inclusion of cancer-preventive vaccines, specifically HPV and HBV vaccination, in Expanded Program on Immunization (EPI)
- Collaboration with stakeholders and community leaders to promote cancer-preventive vaccines to eligible citizens

Effectively implemented, APEC economies would have made available no-cost or low-cost HPV and Hepatitis B virus vaccinations to all eligible individuals.

Recommendation 1.3: APEC economies establish domestic cancer registries and work towards seamless information-sharing and data management with other members, in accordance with existing International Agency for Research on Cancer (IARC), the World Health Organization (WHO), and the International Association of Cancer Registries (IACR) guidelines

Best Practices:

- Training modules for concerned health officials and other stakeholders on use of data from the Global Cancer Observatory
- Regular consultations amongst APEC economies to delineate the economy-level parameters to be reported and data collection mechanisms to be employed to create and maintain a robust cancer registry linked to population registries (e.g. death registry)

This will ideally see operational cancer registries in all APEC economies.

PILLAR 2: Implement early cancer detection programs for effective screening and diagnosis

One third of all cancers are amenable to early detection.²⁴ Early detection, especially within a comprehensive cancer control program, and effective treatment, has the potential to cure or prolong life for a significant number of cancer patients. Without early detection, there are limits to how much disease prognosis can improve. In some instances, this may contribute to higher treatment costs, inefficient use of resources, and greater need for palliative care services.

Early detection is achieved through screening and earlier diagnosis of symptomatic cancers. In *early diagnosis programs*, the target population is generally of a certain age group and sex, prone to developing a specific cancer, and present with early signs and symptoms suggestive of that cancer. When identified early, cancer is more likely to respond to treatment, resulting in a greater probability of surviving, less morbidity, and less expensive treatment. In an effective NCCP, early diagnosis consists of the following aspects that must be integrated: (i) awareness of, and access to care; (ii) clinical evaluation, diagnosis and staging; and (iii) timely access to treatment.²⁵

Equally important to early diagnosis is creating awareness of symptoms among the population. The UK's *Be Clear On Cancer* campaign, which ran from May to June 2012, for instance, impressed upon the population how something as innocuous as a persistent cough could be an early sign of cancer. Approximately 700 additional cancers were diagnosed around the time of the campaign compared to the same period the year before, and about 400 more individuals had these cancers diagnosed at an earlier stage.²⁶ Early diagnosis is relevant in all settings and for the majority of cancers when appropriate treatment is available.

Screening aims to identify individuals who have not developed any symptoms, and to refer those with abnormalities indicative of a specific cancer promptly for diagnosis and treatment. Screening programs can be effective when they are fit-for-purpose; for select cancer types where treatment is available and when appropriate tests are used for different target groups, implemented effectively, linked to other steps in the screening process, and when quality is assured. Wilson & Jungner's principles of screening, which were adopted by the WHO in 1968, highlight several of these elements.²⁷ Examples of effective screening programs include HPV testing, such as partial genotyping and extended genotyping, for cervical cancer (signatories

²⁴ World Health Organization, *Cancer Control: Early Detection Module*; <https://www.who.int/publications/i/item/cancer-control-early-detection>; 2006; Accessed 13 April 2022

²⁵ World Health Organization, *Cancer Fact Sheet*; <https://www.who.int/news-room/fact-sheets/detail/cancer>; 3 February 2022; Accessed 13 April 2022

²⁶ *Lung Cancer Campaign*; <https://www.cancerresearchuk.org/health-professional/awareness-and-prevention/be-clear-on-cancer/lung-cancer-campaign>; Accessed 1 April 2022

²⁷ World Health Organization, *Principles and practice of screening for disease*; <https://apps.who.int/iris/handle/10665/37650>; 1968; Accessed 07 May 2022

to the WHO's Global Strategy to Accelerate the Elimination of Cervical Cancer have committed to screening for 70% of women using a high-performance test (e.g., HPV test) by 2030), low-dose computed tomography (low-dose CT scan or LDCT) for detection of lung cancer²⁸, prostate-specific antigen tests for prostate cancer, and mammograms for breast cancer.

Screening programs are usually complicated and resource-intensive given the large asymptomatic target population size. Economies can overcome these challenges through targeted screening programs for high-risk population segments and employee groups, among others. Customization based on an economy's level of resources, disease burden, and priorities, will help with allocation of limited resources to these programs. In Guangzhou, China, screening for colorectal cancer consists of a questionnaire and two consecutive fecal immunochemical tests to identify patients with colon neoplasms at an early stage, and overcome resource challenges associated with regular screening programs.²⁹ Tianjin, China, on the other hand, conducted free screening for 58,000 people aged 40 to 74 years for lung, breast, liver, and stomach cancer, which are the most prevalent cancers in the province.³⁰ In Chinese Taipei, cancer screening services covering cervical, breast, colorectal, and oral cancers are targeted at individuals aged 30 to 70 years. According to Chinese Taipei's statistics, regular screening can reduce deaths due to cervical cancer by 70%. Breast cancer by 41%, colorectal cancer by 35%, and cancers associated with betel nut chewing or tobacco smoking by 26%.

For successful early diagnosis and screening, early detection programs must include a robust education component to inform the public and healthcare professionals that some cancers can be detected early. Health education involves communicating accurate and up-to-date health guidelines about the importance of screening to the public. Programs should be based on guidelines and adapted locally, addressing common social and known systems barriers, tackling accessibility and simplifying pathways, where possible. Messages should be developed in collaboration with the community, and should use simple language that laypersons can understand. Citizens across APEC economies should learn the possible significance of certain signs and symptoms, such as lumps, sores, or persistent indigestion, change in bowel habits, coughing, or bleeding. Health ministries must emphasize the importance of seeking prompt medical attention at well-identified and accessible healthcare centers.

²⁸ Lung Cancer Campaign; <https://www.cancerresearchuk.org/health-professional/awareness-and-prevention/be-clear-on-cancer/lung-cancer-campaign>; Accessed 1 April 2022

²⁹ Usefulness of the mass screening program for colorectal cancer in China: further long-term validation is needed to confirm its value; <https://atm.amegroups.com/article/view/39221/html>; April 2020, Accessed 18 May 2022

³⁰ Financing Lung Cancer Screening in China, https://milkeninstitute.org/sites/default/files/reports-pdf/No-3900-LungCancerScreeningChina-MR19-WEB_2.pdf; 2018; Accessed 18 May 2022

Healthcare providers, particularly primary healthcare workers and traditional healers, are also a critical target group for awareness-building. These practitioners are at the forefront of initial contact between possible cancer patients and the medical care system. They must be alerted to the signs and symptoms of early cancer (e.g., red flags), and educated to provide counselling, accessible screening tests, where possible, as well as to refer the patient to a specialized center, when necessary. In many cases where there are minimal or no symptoms, building awareness is critical to ensuring that a high proportion of the general population understands the importance of participating in cancer screening programs. Such educational campaigns are particularly important for – and should include strategies for reaching – rural and underserved areas, and ethnic minorities, indigenous populations, women, disabled, and socioeconomically disadvantaged groups (“vulnerable groups”), where limited access to primary care may be an impediment to early diagnosis. Additionally, healthcare professionals should ensure that they have the required capacity in terms of treatment and management services to cater to patients whose cancers are identified through screening or early detection programs.

APEC economies should commit to reducing or eliminating the costs for patients associated with early detection programs, providing early diagnosis and screening initiatives to all segments of the population, such as those located in rural and underserved areas, and disseminating health literature and information regarding cancer-preventive strategies. The latter is particularly important as increased health literacy is a key prerequisite for patient and caregiver empowerment, which can in turn reduce unnecessary pressure on health services and associated costs. In populations where cancers are often diagnosed in late stages, early diagnosis programs may be the most feasible and effective strategy to improve cancer mortality and survival rates.

Recommendation 2.1: Relevant domestic agencies with responsibility for cancer care implement early detection programs for cancer, which will comprise the value chain from consultations (pre- and post-diagnosis), early diagnosis, and adoption of cancer screening, with necessary financial support, depending on resource availability

Best Practices:

- Dedicated funding and financing options, and goal of UHC for (targeted) screening programs and diagnostic testing specific to common and preventable types of cancer, including lung, breast, cervical, and colorectal cancers, along with complementary diagnostic procedures, treatment, psychological support, and after-care following evidence-based guidelines for those with a positive screening result, as well as cancer early detection programs
- Public-private partnerships on early detection of particular cancers and timely access to treatments, with direct participation from ministries and other relevant

government entities alongside civil society, patient advocacy groups, the private sector, and other stakeholders

- Encouraging private insurance agencies to promote and incentivize evidence-based early detection or screening programs, including reimbursement for follow-up care and treatment resulting from abnormal screens
- Ensuring a minimally sufficient number of clinics or screening locations are accessible – on a per capita basis (e.g. guideline on the number of primary care settings and services per 100,000 members of the population) – to ensure equitable access to all individuals, and service availability and readiness considerations are met.
- Provisions for mandatory inclusion of cancer screening data in domestic cancer registries and/or other tangible mechanisms to track and report transparently cancer screening rates for screenable cancers across various demographics and locations. Inclusion of screening data in cancer registries is needed to track patients throughout the care continuum to ensure appropriate follow-up and cancer care after screening, and to measure impact of screening programs at the population level

Such practices support early detection , by incorporating diagnosis and screening elements, with financial support for eligible individuals.

Recommendation 2.2: APEC economies create cancer awareness campaigns to educate stakeholders on cancer symptoms, and the viability and availability of screening programs and early diagnosis for certain cancers

Best Practices:

- Task forces, with representation from target audiences, to co-design content and communication plans to educate public health officials, primary care providers, and community leaders on screening and early detection programs, according to screening and treatment guidelines
- Outreach programs to promote health literacy and educate the public on early detection program availability and pathways for diagnosis, treatment, and care for individuals who appear for these programs
- Assessing the effectiveness of awareness programs by monitoring the process and outcome of organised screening at regular intervals

Educational programs and awareness campaign target key segments of stakeholders, including general public and healthcare professionals, engaged in cancer control efforts.

Recommendation 2.3: Relevant APEC domestic agencies develop adequate infrastructure for early diagnosis and screening and train healthcare professionals to execute effective early detection programs

Best Practices:

- Making available functional and up-to-date medical equipment, compliant with domestic& international standards, for accurate early diagnosis and screening for multiple cancers, including lung, cervical, colorectal, breast and oral cancers, with regular monitoring and reporting
- Sustainable training programs for healthcare professionals on appropriate use of relevant medical equipment; which are developed through public-private partnerships
- Creation of a regional screening framework for standardized monitoring across APEC (e.g. recommended target groups, types of cancer, frequency of screening, along the lines of WHO's recommendations for cervical cancer)

This will increase the number of beneficiaries through cancer early diagnosis and screening programs for any given APEC economy.

PILLAR 3: Make cancer treatment, rehabilitation, and palliative care services equitable and accessible to all individuals

Domestic treatment, rehabilitation, and palliative care components of cancer control programs should focus on accessibility to *all* people with cancer, and services should be delivered in an equitable manner. Unequal access to innovative cancer treatments is largely due to inequitable distribution of social determinants of health, insufficient financing, and inadequate public health coverage. Action on these factors, including through UHC, is essential to create inclusive, equitable, economically productive, and healthy societies.

Effective cancer prevention and control also require leadership and a coordinated multi-stakeholder engagement, which includes health-in-all policies and whole-of-government approaches across various sectors, as well as partnership with private entities.

The development of efficient, equitable and patient-centered treatment, rehabilitation, and palliative care services, within a domestic cancer control program, requires a number of proactive steps, including:

- Working with public and private stakeholders to establish a collaborative approach; and drawing up clear cancer guidelines for timely detection, treatment, and referral to treatment and care, in line with domestic guidelines;
- Developing rapid referral program guidelines for targeted cancers, including minimum requirements for standards of care and quality control mechanisms;
- Developing an essential list of medicines using health technology assessment for targeted cancers according to cancer-type specific guidelines;
- Ensuring self-management training and support for patients, including comprehensive rehabilitation care;
- Ensuring that palliative care services are available for all patients; and
- Creating an organizational environment that facilitates cancer research, including adequate funding, and provides continuous training and incentives to providers and users.³¹

The WHO recommends a case-specific implementation, based on the availability of resources and adapted to the particular conditions in the economy. Economies with low or medium levels of resources may organize diagnosis and treatment services to prioritize common cancers that can be detected at the early stages, or to those with high potential for cure.

³¹ World Health Organization, *Cancer Control: Diagnosis and Treatment Module*; <https://www.who.int/publications/i/item/cancer-control-diagnosis-and-treatment>; 16 February 2014; Accessed 13 April 2022

Economies with higher levels of resources, may wish to reinforce the development of comprehensive cancer treatment centers that provide no- or low-cost treatments to all members of the population, if possible. The WHO has developed a Costing Tool for NCDs,³² including cancer, that economies can use to forecast medium-term financial resource needs at the federal or municipal level. It has also developed a cervical cancer-specific costing tool, to assist LMICs plan cervical cancer control strategies.

Ways to improve equitable access to cancer care include policies like UHC, collaboration with private-sector stakeholders, including innovative partnerships with payers, insurers and healthcare industry, as well as fully leveraging the role of technology. In Chile, industry stakeholders have partnered with the health ministry to promote rapid referrals through initiatives such as training medical officers in district hospitals on identifying symptoms, screening patients, and creating awareness about commonly occurring cancers. Technological advances in precision medicine and artificial intelligence (AI) could go some ways in improving access to innovative breakthrough treatments for patients. Chinese Taipei, for instance, is currently implementing its Cancer Registry Plan 2.0, which aims to promote cancer prevention by enhancing the use of AI in cancer registry. The COVID-19 pandemic has further prompted APEC economies to utilize technology in healthcare in groundbreaking ways. Health ministries must take those lessons and integrate technology in existing and future cancer control policies.

Recommendation 3.1: APEC economies develop cancer guidelines for domestic screening, diagnosis, treatment, rehabilitation, and palliative care, including expedient and well-established treatment guidelines for those diagnosed with cancer

Best Practices:

- Engagement between health ministries and public and private stakeholders, including patient support groups and civil society, to create, update, and effectively implement domestic standards for care and a clear diagnosis-to-treatment pathway for cancer
- Institutionalized reporting for cancer treatment and management, including the length of time from referral to first appointment, detection procedure to diagnosis, from diagnosis to treatment, and length and outcome of treatment
- Building an ecosystem that makes accessible supportive care services to all patients to prevent or treat as early as possible the symptoms of cancer, including side effects caused by cancer therapies, and various psychological, social, and spiritual problems related to cancer

Economies may wish to develop comprehensive cancer treatment guidelines in effect, at minimum, for the most common cancers – lung, breast, cervical, and colorectal cancers.

32 Costing Tool – User Guide; Scaling Up Action against Non-Communicable Diseases: How Much Will It Cost?; <https://www.ncbi.nlm.nih.gov/books/NBK148602/bin/simplifiedtools-m5.pdf>; 2012; Accessed 20 May 2020

Recommendation 3.2: APEC economies ensure equity in access to cancer treatment, management, and rehabilitation services, including addressing elements such as health literacy, cultural safety, and language needs for vulnerable groups

Best Practices:

- Collection and analysis of data related to cancer treatment and care by gender, ethnicity, and location; identify inequities, and addressing identified inequities through partnerships and stakeholder engagement
- Establishment of centres for early detection, treatment, and other cancer-related services close to residential clusters of traditionally vulnerable groups, and in rural or remote areas
- Training of healthcare providers, in tandem with health ministries and other public and private stakeholders, in remote locations to provide basic cancer diagnosis, treatment, and care-related services
- Public and private stakeholder partnerships to leverage telehealth and accelerate investment in tech-based innovations (in service delivery, medical equipment, and precision medicine) for equity in access to cancer services; and removing barriers (whether related to regulatory/market access decisions, or reimbursement/access to services) to promote greater adoption and uptake of technology-based solutions to enhance equitable access

At the broader level, economies need to identify vulnerable and disadvantaged groups based on metrics such as geography, gender, race, income-level, ethnicity, level of risk, and other factors as applicable to their population; and implement targeted programs to ensure equity in access to cancer treatment, management, and rehabilitation services.

Recommendation 3.3: APEC economies emphasize utilization of digital tools and infrastructure in improving cancer treatment and services, and facilitating patient care

Best Practices:

- Facilitative regulations and financial support to incentivize in-house and private sector development of digital tools that can improve cancer care including elements such as information disbursement and access to care, especially to underserved populations and regions
- Mechanisms such as dedicated grants or grand challenge competitions to incentivize development of innovative digital tools for optimization of cancer control program implementation

- Use of integrated online systems: (a) with medical history self-reporting capability and links to appropriate clinical facilities; and (b) which allow scheduling of virtual consultations

Investment and promotion, through incentives or campaigns, of the use of digital tools (such as mobile applications, and digital cancer registries among others) for provision of treatment and services to all patients go a long way in facilitating patient care.

PILLAR 4: Implement robust governance systems and stakeholder engagement processes for successful execution of NCCPs, alongside tools to evaluate progress in cancer outcomes

The mere creation and adoption of a NCCP is not sufficient to address an economy's unique cancer care needs. Effective NCCPs need to be properly embedded in institutional, legal, and financial frameworks, including complementary investment in governance tools that ensure optimal mechanisms to cost, finance, and monitor the implementation, accountability, and evaluation.³³ Similar to any other structured and organized activity, an NCCP requires sound monitoring system, which measures progress towards goals and state of implementation, follow-up, update, and future development. This process of evaluation should be an essential ongoing tool, part of efforts to support evidence-based decision making processes at the various stages of cancer programs.

Effective governance and implementation, also require comprehensive data collection and data management to inform health policy decisions, assess impact of NCCPs, and identify cancer risk factors that affect the population. The U.S. National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program, for instance, categorizes information collected by registries into patient demographics, tumor/cancer characteristics, stage of disease, treatment, and outcomes (e.g. status, cause of death, and survival time). Likewise, in China, the National Cancer Center and the Chinese Center for Disease Control and Prevention have developed an automated web-based National Cancer Data Linkage Platform to share data linking deaths rates due to seven types of cancer, in order to determine appropriate responses. As we look to the future, big data, including social, clinical, and behavioral information, and AI tools based on data from cancer registries and other information systems and health system assessments should be employed in order to develop, monitor, assess, and update NCCPs efficiently.³⁴

Collaboration across institutions and agencies in government, and the private sector promotes and maintains population health in an inclusive manner, reduces risk factors, potential health effects, and contributes to more effective NCCPs. While governments remain key players, the private sector and civil society have an important role in driving implementation of NCCPs through support for these programs in the form of public-private partnerships, technical support, and stakeholder engagement and feedback. Active participation of the public to address cancer control, particularly the participation of grass-

³³ Governance is defined by the World Health Organization as "a wide range of steering and rule-making related functions by governments/ decision-makers as they seek to achieve national health policy objectives". This involves policy development and implementation, detecting and correcting undesirable trends, influencing or regulating health care funders and providers, and establishing accountability mechanisms by monitoring and evaluating health system performance - *ancer Control EU - Cancer Screening: Policy Recommendations on governance, organization, and evaluation of cancer screening*, https://cancercontrol.eu/archived/uploads/images/Guide/042017/CanCon_Guide_4_Screening_LR.pdf; Accessed 13 April 2022

³⁴ *National Academies of Sciences, Engineering, and Medicine - Guiding Cancer Control: A Path to Transformation*; <https://pubmed.ncbi.nlm.nih.gov/31305976/>; 27 June 2019; Accessed 13 April 2022

roots organizations representing people with cancer and their caregivers, can empower society and improve accountability of public health policies and legislation. Consequently, there needs to be a shift in mindset from a top-down, silo mentality to one of interdependence and collaboration, where engagement facilitates exchange of knowledge, expertise, and resources. The International Cancer Control Partnership's *Cancer Control Plan Development and Implementation Assessment Tool*, for instance, provides a good checklist on building partnerships, and planning for monitoring, evaluation and update of NCCPs.³⁵

Such multi-stakeholder engagement should complement economy-specific attributes that enable successful cancer control policies. In the Philippines, for example, the biggest enablers for the National Integrated Cancer Control Act (NICCA) are proactive state legislators, who ensure allocation of resources for the Act's implementation, including the programs, projects, and activities pertaining to cancer control. In contrast, Chinese Taipei finds success in public-private partnerships that facilitate implementation of cancer control programs, including NGOs and social enterprises involved in cancer prevention, detection, and treatment. APEC economies should customize their programs as per their needs while incorporating best practices, international standards, and recommendations that will contribute to more effective implementation of NCCPs.

Recommendation 4.1: APEC member economies create an APEC Cancer Control Dashboard to drive policy and decision-making processes, comprising metrics such as vaccination rates, patient demographics, cancer characteristics, stage of disease, treatment, and outcomes, among others, which can be adapted to NCCPs

Best Practices:

- Public and private stakeholder collaboration in the creation of guidelines for a domestic Cancer Control Dashboard that tracks important metrics of domestic cancer control programs, drawing references, such as the World Health Assembly resolution on *cancer prevention and control* (WHA58. 22), *U.S. CDC's national cancer control program priorities*,³⁶ *Europe's Beating Cancer Plan* that includes a *European Cancer Dashboard* (currently being developed), and other relevant initiatives.
- Utilization of digital technology for data collection for the dashboard and creation of training and awareness programs for key stakeholders to upload real-time data to the dashboard
- Annual reports on key developments in their CCPs to the Health Working Group (HWG) which may include best practices, key performance indicators, and metrics for monitoring CCPs

³⁵ International Cancer Control Partnership - *National Cancer Control Plan Development and Implementation Assessment Tool*; <https://www.iccp-portal.org/resources/national-cancer-control-plan-development-and-implementation-assessment-tool>; 2016; Accessed 13 April 2022

³⁶ *Cancer Plan Self-Assessment Tool*, <https://www.cdc.gov/cancer/ncccp/pdf/cancerselfassesstool.pdf>; 2012; Accessed 18 April 2022

The creation and implementation of an APEC Cancer Control Dashboard accessible to all stakeholders, including the public, will be helpful to monitor cancer policy in action.

Recommendation 4.2: APEC economies institutionalize mechanisms for multi-stakeholder engagement in decision-making in support of the NCCP

Best Practices:

- Dedicated task force or coalition on cancer control with representation from stakeholders involved in developing and implementing of NCCPs, to confer on governance and execution of NCCPs
- Taskforce or coalition for economy-specific guidelines on good governance of NCCPs to serve as the baseline for governance practices

In general, institutionalized mechanisms to engage stakeholder groups (e.g., local governments, private sector companies, civil society and patient advocacy organizations, academic and research bodies, among others) on governance of NCCPs is helpful to gather feedback and further improve implementation.

Recommendation 4.3: All APEC member economies introduce value assessment frameworks and adopt science-based policy and decision-making processes that incorporate latest knowledge and data

Best Practices:

- Defining, in collaboration with stakeholders, a comprehensive conceptual framework of pathways between cancer control programs and the proposed societal value benefits to drive data generation and policy and decision-making
- Monitoring implementation and outcomes of prevention interventions in the NCCP implementation process
- Effectively communicating the full societal value of cancer control programs to stakeholders (e.g., policy-makers, key decision-makers, funders, and legislators) to demonstrate how cancer control aligns with their priorities

Comprehensive value assessment frameworks that evaluate CCPs' health, social, and economic impact, and establish a communications plan for stakeholders is integral to sound decision-making.

Recommendation 4.4: APEC economies examine the nature and adequacy of public funding for NCCPs, with a view to maximize government funds, generate new revenue, and minimize future expenses

Best Practices:

- Action plans for government financing for cancer care (e.g. “sin tax”) for implementation in-market, including implementation of the WHO’s “best-buy,” high priority, low cost interventions that provide coverage for all individuals
- Identifying innovative and alternative funding models specific to cancer and engage partners in areas where significant investment is required, and public resources alone may not be adequate

Science- and data-based methods go a long way in identifying the true cost of cancer and implementing appropriately funded programs.

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The information and recommendations in this report are based on consultations with, and feedback from, expert representatives at four “Thematic Sessions” on cancer prevention; screening and early detection; cancer treatment & management; and implementation, governance, and evaluation of cancer control plans from September 2021 through January 2022. Over 140 participants representing 15 APEC economies, spanning government, industry, academia, hospitals and providers, cancer societies, and advocacy organizations attended these sessions.

The project organizers would like to express their appreciation to the speakers who gave freely of their time and shared valuable insight at the sessions. The list of moderators and speakers at the various sessions are appended. The organizers would also like to thank the many experts and entities that helped to vet and fine-tune the report and its recommendations.

List of Expert Speakers*

**Based on order of involvement*

No.	Name	Designation	Organization / Economy
Thematic Session 1			
1	Robert Smith	Senior Vice President, Cancer Screening	American Cancer Society, United States
2	Jenelle Krishnamoorthy	Interim Vice President for Global Public Policy	MSD
3	Suleeporn Sangrajrang	Deputy Director, Health System Development, National Cancer Institute, Department of Medical Services	Ministry of Public Health, Thailand
4	Richard Vines	Founder and Chairman	Rare Cancers Australia
5	Dorothy Keefe	CEO	Cancer Australia
6	Nisha Nair	Manager, Prioritization, Innovation & Research	Cancer Control Agency, New Zealand
7	Supreda Adulyanon	CEO	ThaiHealth, Thailand
8	Zee Yoong Kang	CEO	Health Promotion Board, Singapore
9	Tony Hsiu-His Chen	Professor, College of Public Health	National Taiwan University, Chinese Taipei
Thematic Session 2			
10	Patti Gravitt	Deputy Director, Center for Global Health	National Cancer Institute, United States

Best Practices and Recommendations for APEC Collaboration on Cancer Control

No.	Name	Designation	Organization / Economy
11	Tony Hsiu-Hsi Chen	Professor, College of Public Health	National Taiwan University, Chinese Taipei
12	Karen Bartholomew	Director, Health Outcomes	Waitemata District Health Board (DHB) and Auckland DHB
13	Linda Rabeneck	Vice President, Prevention and Cancer Control	Cancer Care Ontario, Canada
14	Sirasak Tepakum	Chief Executive Officer	Thailand Centre of Excellence for Life Sciences
15	Ilana Gareen	Associate Professor, Department of Epidemiology	Brown University, United States
16	Yeoh Khay Guan	Senior Vice President (Health Affairs)	National University of Singapore
17	Cheong Sok Ching	Senior Group Leader	Cancer Research Malaysia
18	Sue Crengle	Associate Professor, Department of Preventive and Social Medicine	University of Otago, New Zealand
19	Viva Ma	Director, Strategy Access, Public Affairs	BD, Singapore
Thematic Session 3			
20	William Hwang Ying Khee	Medical Director	National Cancer Centre of Singapore
21	Lucy Elwood	CEO	Cancer Society of New Zealand
22	Aileen Dualan	Asia Pacific Medical Affairs Leader	MSD, Singapore
23	Jau-Jie Huang	Senior Executive Officer, Medical Affairs Division, National Health Insurance Administration	Ministry of Health and Welfare, Chinese Taipei
24	Manoj Irap	Regional Therapeutic Area Lead - Oncology	Pfizer
25	Jose Jeronimo	Consultant	National Cancer Institute, United States
26	Chih-Hsin Yang	President	Taiwan Oncology Society, Chinese Taipei
27	Nirmala Bhoo Pathy	Associate Professor of Epidemiology, Department of Social and Preventive Medicine, Faculty of Medicine	University of Malaya, Malaysia
Thematic Session 4			
28	Michelle McConnell	Director, Asia and Pacific, Office of Global Affairs	Department of Health and Human Services, United States
29	Chen Chien-Jen	Distinguished Research Fellow	Genomic Research Center, Academia Sinica, Chinese Taipei
30	Clarito Cairo	Program Manager, National Integrated Cancer Control Program, Cancer Control Division, Disease Prevention and Control Bureau	Department of Health, The Philippines
31	Susan Parry	Clinical Director Clinical Director	Bowel Cancer Program, Ministry of Health, New Zealand New Zealand Gastrointestinal Cancer Service
32	Graeme Young	Matthew Flinders Distinguished Emeritus Professor, College of Medicine and Public Health	Flinders University, Australia

Best Practices and Recommendations for APEC Collaboration on Cancer Control

No.	Name	Designation	Organization / Economy
33	Shilpa Shah-Mehta	Head of Oncology, Asia Pacific	MSD
34	Carlos Santos	Gynecological Oncologist, Technical Team of the Division of Prevention and Control of Cancer	Ministry of Health, Peru
35	Corazon Ngelangel	President Member	Philippine Cancer Society Philippine National Cancer Council
36	Neal Palafox	Professor, Population Sciences in the Pacific Program (Cancer Prevention in the Pacific)	University of Hawai'i Cancer Center, United States
37	Yin-Ling Woo	Gynecologist Oncologist and Lead for the ROSE programme for elimination of cervical cancer	Universiti Malaya, Malaysia
38	Ernest Hawk	Vice President and Division Head for Cancer Prevention and Population Sciences	University of Texas MD Anderson Cancer Center, United States

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