Chapter
8

Research

Direction

8.1 Through generation of scientific knowledge derived from local and global research, as well as translating such knowledge into clinical practice, we aim to provide more and better evidence to support cancer prevention, diagnosis, treatment and survivorship, as well as formulation of evidence-based health policy, to reduce cancer incidence, morbidity, mortality, and to improve the quality of life of patients.

Strategies

A. Setting priority for cancer-related research

8.2 Research Council, which governs the Health and Medical Research Fund ("HMRF"), will accord higher funding priority to studies on cancer-related areas. An Expert Advisory Panel ("EAP") on cancer has been set up under the Research Council to make recommendations to advance science and to shape the research agenda of the HMRF. At the first meeting in September 2018, the EAP agreed to adopt the following thematic priorities on cancer-related studies –

The HMRF provides funding opportunities to Hong Kong-based researchers in the academic, public and private sectors. Investigator-initiated projects are supported through annual open call applications guided by the thematic priorities (including cancer-related priorities). In the application rounds for investigator-initiated studies from 2012 to 2017, the HMRF has supported 237 cancer-related studies accounting for 21.0% of all funded projects. These researches focused on liver cancer (27.4%), nasopharyngeal carcinoma (12.2%), breast cancer (9.3%), colorectal cancer (9.2%), lung cancer (7.6%), leukemia (5.9%) and ovarian cancer (4.2%). A large proportion of the studies (41.4%) investigated the prevalence, risk factors, and mechanisms for causing cancer. Many of these studies were molecular or genetic studies, with a view to identifying potential targets for diagnostics and development of new cancer drugs. About one third (30.8%) of the studies addressed new treatment modalities or evaluation of existing treatment options. About one fifth (21.9%) of the projects studied cutting-edge science in diagnosis and prognosis including various biomarkers in predicting tumour progression and treatment outcome. Studies on prevention strategies accounted for 1.3% among all funded cancer projects.

(a) epidemiology studies on cancer risk factors that can help formulate strategies for primary prevention;

(b) use of appropriate screening strategies for early identification and treatment of cancer;

(c) development of novel diagnostic tools, new treatment modalities including robotic surgery, chemotherapy and radiotherapy to reduce mortality and morbidity;

(d) development and evaluation of cancer survivorship care delivery to address long-term and late effects of cancer;

(e) applied research in genetics and genomics for personalised medicine, in particular target therapies for different tumours; and

(f) application of big data analytics to examine clinical information for better management of cancer patients.

The Government has allocated $10 billion to establish the InnoHK Clusters at the Hong Kong Science Park, and has already received a myriad of proposals from world-leading universities and research institutes. Health@InnoHK, among which, will focus on healthcare research, including for instance drug discovery, personalised medicine, molecular diagnostics, vaccine development, alternative medicine, etc. It is believed that boosting healthcare research will bring about breakthroughs in the diagnosis and treatment of cancer and other diseases.

The Hong Kong Science and Technology Parks Corporation is supporting research and development activities of more than 120 biomedical companies in Hong Kong Science Park. These companies are developing molecular diagnostics, medical devices, advanced therapy products and traditional Chinese Medicine for commercialisation. The ecosystem therein is supplying early detection technologies, from medical and cell imaging to gene panels and genome sequencing, for precision medicine in Hong Kong. There are also Phase I and II clinical trials examining new advanced therapy products to treat cancers such as prostate, skin and blood cancers.

The Research Grants Council ("RGC") attaches great importance to supporting the research work conducted by the higher education sector and applies equal support to all types of academic research. In 2018, more than 40 cancer-related projects are funded by the RGC.

Besides, another EAP was set up on implementation science to promulgate research addressing strategies to implement health promotion, prevention, screening, early detection, and diagnostic interventions, as well as effective treatments, clinical procedures, or guidelines in existing care systems. EAPs will regularly review and refine the thematic priorities according to the latest

scientific development and technology advancement. The HMRF will allocate funding based on EAPs' recommendation.

8.3 In addition, the HMRF has provided funding to support the infrastructure of the two Phase I Clinical Trials Centres ("CTCs") with total funding of $80 million for five years to conduct early phase clinical trials. Since January/February 2014, the two Centres have commenced trials on safety, pharmacology and efficacy of various treatment for a range of cancers including liver, lung, breast, colorectum, kidney and other solid tumours. Additional funding of $100 million will be provided, starting from May 2019 for five years, to the two Phase I CTCs for development of novel pharmaceutical products including those treating different cancers.

8.4 The newly-established Hong Kong Children's Hospital serves as a tertiary referral centre for complex, serious and uncommon paediatric cases requiring multidisciplinary management, such as cancers, congenital heart diseases and renal failure. It provides diagnosis, treatment and rehabilitation services for patients with relevant clinical needs from birth to 18 years of age territory-wide. Dedicated infrastructure such as research laboratories and clinical trial centre have been planned in the Hong Kong Children's Hospital to facilitate close collaboration with the medical faculties of The University of Hong Kong and The Chinese University of Hong Kong for pursuing basic and translational research in paediatric and genetic diseases, which may include children cancers.

8.5 Genomic medicine is an important sphere in contemporary medicine and scientific research. The Government will set up the Hong Kong Genome Institute to implement the Hong Kong Genome Project ("HKGP"), under which around 40 000 to 50 000 whole genome sequencing would be performed. The pilot phase of the HKGP would cover patients with hereditary cancer and their family members, among others. Through the establishment of a genome database, HKGP will help promoting genomic medicine research which may contribute to diagnosis and guiding treatment for cancers.

B. Providing scientific evidence to inform and evaluate cancer-related policy

8.6 Sound research will be an integral part in the policy making process. Two large-scale studies addressing specific issues on colorectal cancer and breast cancer are on-going. The former assesses the overall performance of the Colorectal Cancer Screening Pilot Programme, including its effectiveness and cost-effectiveness, satisfaction of users and service providers, change in public understanding, perception, acceptance and equitable use of screening. The aim of the latter study is to formulate a risk prediction model for breast cancer in Hong Kong using a case-control study approach under which a comparison is made between women with and without breast cancer. It also aims to find out the relationship between risk factors (such as age, body mass index and other personal characteristics, physical activity, family history of breast cancer, and history of benign breast disease) and breast cancer development.

8.7 Moreover, the HMRF also commissioned a population-based cohort study to examine the chemo-protective effects of aspirin against multiple cancers. The study will assess whether the long-term use of aspirin is associated with the risk reduction on cancer incidence and mortality, and to evaluate the benefits of aspirin outweigh its potential risks of bleeding events by examining clinical records of a cohort of more than 600 000 patients. To tackle tobacco-related harms, a major risk factor for cancer, a three-year study has been commissioned to evaluate the impact of tobacco control policies in Hong Kong. The study aims to establish a systematic survey to determine the effectiveness of existing tobacco control measures and to recommend new measures in line with the research findings. In the coming years, the HMRF will continue to commission other research to address specific policy needs.

C. Building capacity to nurture local researchers to conduct cancer-related research

8.8 The Research Fellowship Scheme ("RFS") under the HMRF would support researchers or healthcare professionals in their early to mid-career, to enhance their skills in public health or health services research. Funding support will be provided for successful applicants to attend local or overseas training programmes which can help equip them with knowledge and skills to become independent researchers. Additional funding will be provided for an original research project with high translational potential within short-to-medium timeframe and association to the training programme. To tie in with the "Towards 2025: Strategy and Action Plan to Prevent and Control Non-communicable Diseases in Hong Kong", in the 2018 round of application, higher priority has been accorded to applications addressing risk factors such as smoking, alcohol drinking, unhealthy diet and physical inactivity which are associated with various types of cancers.

Expected Outcome by 2025

8.9 The HMRF seeks to achieve the following -

(a) support about 300 investigator-initiated research and health promotion projects in the next six years for better prevention and control of cancer; and

(b) support about 30 awardees in the next six years under the RFS addressing the risk factors of cancer.