

## Commentary

## Leveraging CDC's Advantages in Enhancing Cancer Prevention and Control

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The 26<sup>th</sup> National Cancer Week takes place from April 15–21, 2020, and we would like to take this opportunity to raise the awareness for all parts of our society. This year's theme is "Joint Action for Anti-Cancer" (1). The government will continue to assume a leading role, while private organizations and individuals are encouraged to participate proactively. The goal is to involve all citizens in the building and development of a supportive environment for cancer prevention and control with the benefits jointly shared by all.

### The Importance of Enhancing Cancer Prevention and Control

Cancer is a common enemy of mankind that leads to labor force loss and family poverty, which has huge impacts on the national economy and the sustainable development of society. According to an estimate by the World Health Organization's (WHO) International Agency for Research on Cancer (IARC), there were more than 18 million cancer incident cases and 9.5 million deaths worldwide in 2018 (2). China CDC's statistics show that there are more than 3.5 million incident cancer cases each year in China, the mortality in 2018 was 183.89 per 100,000 persons, and the death case was around 2.55 million (3). The most common cancers in China include lung cancer, breast cancer, gastric cancer, liver cancer, colorectal cancer, esophageal cancer, cervical cancer, and thyroid cancer. The top 3 cancers were lung, liver, and gastric cancers which accounted for 56.75% of all cancer deaths in 2018 (3). Recently, there was an increasing trend of lung, breast, and colorectal cancer incidence, and the incidence of liver cancer, gastric, and esophageal cancers remained high. Cancer containment still remains challenging.

Cancer is preventable and controllable. WHO suggests that cancer is a lifestyle-related disease and that one third of cases can be prevented, another third can be cured by early detection, and the last third can receive treatment that will prolong survival, relieve

suffering, and increase quality of life with existing medical treatments. Early cancer prevention measures should be taken to reduce the physical and mental suffering and financial burden on individuals and families and therefore improve the quality of life. Cancer risk can be minimized if healthy living habits are developed from childhood and exposure to carcinogenic risks is avoided (4–5).

Many international studies and practice experiences have shown that taking proactive prevention strategies and measures would have significant effects on reducing cancer incidence and deaths (6–8). Continuous analysis of the US's past thirty-year cancer statistics indicates that the number of deaths is decreasing and is opposite to the increasing incidence. Experts estimate cancer deaths fell by around 2.9 million since 1991 due to reductions in the population of smokers and decreases in lung cancer deaths, which are growing more significant in reducing cancer fatalities (9–12).

### The Features of China's Policies on Cancer Prevention

The prevention and control of cancer has always been China's priority. A series of plans and outlines have been made and implemented during the past 8 years. The Working Plan of Non-Communicable Disease (NCD) Prevention and Control (2012–2015) was issued in 2012, the Three-Year Action Plan (2015–2017) for Cancer Control and Prevention was enacted in 2015, and the "Healthy China 2030" Planning Outline issued in 2016 clearly states the goals and tasks of cancer containment. In the same year, the Medium-Long Term Plan for NCD Prevention and Control (2017–2025) set the improvement of the 5-year overall survival (OS) as one of the main goals. In June 2019, the State Council kicked off Healthy China Action and issued a portfolio of specific plans under this big initiative. One of the action plans that was specifically aimed at cancer containment was "The Cancer Prevention and Control Implementation Plan

2019–2022 (13)". The released policies showed that cancer prevention and control has been raised to a position of national health strategy.

These policies had also shown increasing focus on cancer prevention and treatment from all aspects, having prevention as the main concern and combining prevention with therapy. In particular, the first of the eight actions in the implementation plan is the Risk Factor Control Action, which not only emphasizes health knowledge education and healthy behavior cultivation but also the construction of health supporting environments. Those are also the core tasks of chronic disease prevention and control for CDCs at all levels.

### The Advantages of CDCs in Cancer Prevention

Cancer prevention has always been a major task of chronic disease control for Chinese national and regional CDCs. The organization has many advantages in realizing national requirements:

First, China's CDCs have an advantage in the surveillance system, especially after an integrated China Cause of Death Reporting System (CDRS) has been established in combination with the Disease Surveillance Points System (DSPs) and National Vital Registration System in 2013. The data is not only representative of the nation, but also represents individual provincial-level administrative divisions (PLADs), which serves as important references for decision-making.

Second, the CDCs have an advantage in multidisciplinary research. For decades, the CDCs have carried out a series of laboratory and population studies in cancer etiology and the relationship and association between cancer and occupations, the environment, nutrition, tobacco, and other lifestyle risk factors. The CDCs have constantly been applying research findings into practice.

Third, the CDCs have an advantage in regional projects implementation. In the Huai River Basin, the comprehensive cancer prevention and control practice, an integrated environment and health surveillance system that covers more than 18 million people, has been running for more than 10 years. A portfolio of prevention measures, including health promotion, lifestyle interventions, professional capacity building, HBV vaccination, improvement of drinking water, environmental factors, etc., have been implemented. These efforts have controlled and reduced the high

cancer incidence in the regions.

Fourth, the CDCs have an advantage in primary prevention. Population-based tobacco controls and expanded vaccination campaigns have been strengthened in recent years. In addition, CDCs put in place the "Healthy Lifestyle for All Initiative", demonstration zones of NCD control and prevention, and Anti-Cancer Workplace Program among other initiatives. A series of materials and tools for cancer prevention and control have been developed along the way.

### Suggestions for Leveraging the CDCs' Advantages in Enhancing Cancer Prevention and Control

The overall goal, "Curb the uprising cancer incidence and mortality by 2022, improve the 5-year overall survival of cancer by 3% over 2015", has been clear. The timeline is tight and enforcing earlier prevention is critical. To address current weaknesses, we put forward four concrete suggestions:

First, we should strengthen scientific research on cancer prevention at the national level. An increasing number of research findings emphasize that prevention is the most economical and effective method for cancer control (14–16). Non-therapeutic approaches that were neglected before are drawing attention, such as reduce salt intake to prevent gastric cancer and appropriate exercise for cancer prevention. However, current cancer prevention research is not sufficient, so we suggest that the Ministry of Science and Technology (MOST), the National Science Foundation of China (NSFC), and other resources give more support for precise individual risk-assessment-based prevention studies, randomized controlled trials, and large-scale cohort studies.

Second, proactive measures should be taken at the national level to strengthen the roles of CDCs and make full use of the CDCs' four-tier system (national, provincial, municipal, and county). We should strengthen the training of big data analysis and the knowledge and comprehensive skills for cancer prevention and control for public health personnel at all levels. We suggest that CDCs team up with clinicians and set up multidisciplinary teams to work as local cancer prevention technology centers, conduct specific research, and carry out prevention plans, technical paths, and guidelines that consider local conditions. We suggest the establishment of a number of model institutes for health management with a

cancer prevention focus and a number of transformation and commercialization platforms for research results to provide more prevention services for local residents.

Third, practical experience gained regionally should be promoted to a nationwide scope. Mobilizing the masses has always been an effective tool in our work, and proven regional models can be expanded to more places, such as the comprehensive cancer prevention and control in the Huai River Basin, in Linxian County of Henan Province, and others. Proven effective measures should be supported by medical insurance policies or essential public health services. Commercial health insurance should also be explored and private capital should be involved. Information technology should be continuously applied to improve monitoring systems so that the assessment of these measures and projects will be more closely monitored.

Fourth, awareness of cancer prevention should be raised for social economic and sustainable development perspectives. Widespread support should be gained domestically and from outside of China. We should explore and develop mobile-technology-based interventions and precise prevention management among high-risk populations, which will lead to the industry evolution. We should reduce cancer-caused poverty by preventing cancer and meeting the health-driven poverty reduction goal. Furthermore, we should work more closely with international parties, share Chinese wisdom of cancer prevention in the international community, participate in the formulation of more international standards and norms, demonstrate our commitment to the community of a shared future for mankind, and take responsibility as a great nation.

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