

## Commentary

## Recommendations and Future Direction for Population-Based Prevention and Control of Behavioral Risk Factors for NCDs

Zhuoqun Wang<sup>1,2,&</sup>; Dan Liu<sup>3,&</sup>; Yanfang Zhao<sup>1</sup>; Man Li<sup>4</sup>; Yamin Bai<sup>1</sup>;  
Shengquan Mi<sup>5</sup>; Xiaofeng Liang<sup>6,7,#</sup>; Wenhua Zhao<sup>2,8,#</sup>

Based on the major findings of our studies, we found that in the past two or three decades, China's noncommunicable diseases (NCDs) prevention and control policies experienced rapid development. The service mode of NCDs management was transformed, the service capabilities at primary medical facilities were comprehensively improved, and the health literacy and action capability of residents were improved. Remarkable achievements have been made in the prevention and control of NCDs, and a lot of experience has been accumulated. However, unhealthy lifestyles among Chinese residents are still common, and the control of NCDs and related behavioral risk factors faces great challenges. Therefore, in order to implement the Healthy China strategy, early prevention and strengthening of the health management of NCDs in high-risk groups are essential.

### EXPERIENCES AND ACHIEVEMENTS

China's NCD prevention and control policies developed steadily over the last 30 years, and the "Healthy China" strategy was elevated to become a national strategy. From 1990 to 2020, China's NCDs prevention and control policies experienced a rapid development. The number of policies issued at the highest levels such as the Communist Party of China (CPC) Central Committee, the State Council, and the National People's Congress gradually increased, accounting for one-third of the total number of policies on NCDs. The issuing department changed from single ministry or commission in the early stage to multiple ministries and commissions jointly issuing documents. Regarding the types of policies, most were environment-oriented, but supply-oriented and demand-oriented policies were also increasing.

The policy focus shifted from addressing NCDs to comprehensive prevention and control of their risk factors, creating a favorable policy environment for

NCDs prevention and control. In particular, in 2016, the CPC Central Committee and the State Council incorporated the implementation of a comprehensive NCD prevention and control strategy into the *Outline of the Plan for Healthy China 2030* (1–2). In the 15 special actions under the *Healthy China Action (2019–2030)* (3), 4 actions were targeted at NCDs prevention and treatment and another 6 actions such as reasonable diet, national fitness, and tobacco control were aimed at interventions on health-influencing factors for the prevention of NCDs. "Healthy China" was upgraded as a priority national strategy, NCDs prevention was placed at a more prominent position, and policies shifted from being "disease-centered" to "health-centered."

Fairness in health was promoted and holistic NCD prevention and control was achieved. The China Healthy Lifestyle for All (CHLA) and the National Basic Public Health Services Projects (NBPHSP) are two national strategies and actions covering all Chinese people (4–5). They are important measures to improve the health of residents and truly demonstrate that the Chinese government has taken concrete actions to fulfill its responsibilities in the field of public health so as to safeguard people's health in an all-round and life course way. With relatively small investments, the country protected the health and safety of about one-sixth of the world's population. Government investment was increasing year by year to ensure equality in funding standards. Central government funds were allocated in priority to poverty-stricken areas in the western and central regions to ensure fairness and accessibility of healthcare.

The service mode of NCD management was transformed. The pattern of waiting for the call for services at primary medical institutions was transformed. They became more active in providing services and promoted family doctor contract services. Relying on the team of general practitioners, they signed agreements with NCDs patients so as to provide them with continuous, personalized, and comprehensive services. Medical communities were set

up and a hierarchical diagnosis and treatment system was advanced, which resulted in the gradual formation of a treatment pattern characterized by initial diagnosis by primary medical facilities, hierarchical diagnosis and treatment, and two-way referral. For example, patients with minor illness seek medical service from community health facilities, those with major illness seek help from higher-level hospitals, and those in recovery can go back to the primary health facilities so that every household has a “family doctor” and everyone has access to basic medical services (6).

Information technology had been applied to help realize the whole-process management of NCD. IT opportunities and technology have developed rapidly in recent years and have also been fully used for NCDs prevention and control. For example, the mainstream media and new media (Weibo, WeChat official account, short videos, etc.) were used to carry out various forms of publicity and education on NCDs prevention and treatment. The Internet was integrated with the health industry to try out new modes of health management services for NCDs. Information technology was used to achieve whole-process NCDs management from information collection to evaluation of intervention effects, which made medical and health services convenient, efficient, and sustainable (7).

The health literacy and action capability of residents was much improved so that they could take the first responsibilities for their health. China made extensive efforts to publicize and advance the implementation of the CHLA and the NBPHSP, and developed and promoted applicable health technologies and support tools, which helped people to foster healthy behaviors and lifestyles. It built a health management model characterized by centering on the individual self, interpersonal mutual assistance, social support, and government guidance, which greatly enhanced people’s capabilities to maintain and promote their own health, and implanted the concept of “taking the first responsibilities for one’s own health” into people’s mind so that everyone can gradually become conscious and capable of protecting their own health (8–9).

## CHALLENGES

The implementation and development of integrated prevention and control strategies for NCDs are unbalanced and insufficient. Although the nationwide NCDs prevention and control work has achieved full coverage, there is still a big gap in the implementation of NCDs prevention and control strategies between the

east and the west, and between urban and rural areas. The allocation of medical resources is still quite uneven. The health literacy of urban and rural residents in China has been greatly improved, but there are still big differences between urban and rural areas and among regions (1).

Manpower at primary medical facilities is insufficient to fully meet the needs of NCD prevention and control. On the one hand, manpower at primary medical institutions is insufficient to meet the needs of the huge number of NCDs patients and high-risk groups for health services; on the other hand, although the capabilities of the primary-level staff have been greatly improved in recent years, they cannot meet the needs of NCDs prevention and control and people’s increasing demands regarding NCDs management, especially in terms of risk factor intervention and lifestyle management skills.

Early prevention is implemented among high-risk groups, which generates both demands and challenges. The implementation of a strategy targeting NCDs high-risk groups will help identify high-risk groups of NCDs in the early stage so that health management and enhanced lifestyle interventions can be carried out to reduce the risk level of NCDs occurrence in individuals, and prevent and delay such occurrences. It is the most cost-effective method. However, there is a clear shortage of policies in China that are aimed at service users, individuals, and improvement of institutional capacity building for the prevention and control of the behavioral risk factors of NCDs.

There is no systematic evaluation of the national strategies and actions for NCD prevention and control. There is still a lack of regular, scientific, and systematic evaluation of national strategies and actions for prevention and control of NCDs, such as the CHLA and the NBPHSP, and of strategies and actions for prevention and control of behavioral risk factors such as smoking and physical inactivity.

## RECOMMENDATIONS AND FUTURE DIRECTION

Implementing the Healthy China strategy will effectively promote the implementation of measures and strengthen evaluation. China’s prevention and control policies for behavioral risk factors of NCDs should be further strengthened and supplemented to serve the demand side (service users); the existing strategies and actions with strong pertinence, wide

coverage, direct function, and obvious effect shall be further advanced to ensure the realization of the goals of the “Healthy China” strategy. All the relevant departments and regions shall establish supervision and evaluation mechanisms, and include the implementation of plans as an important item subject to government supervision so as to drive the implementation and fulfillment of various plans, goals, and measures. The state should also regularly organize evaluations on the implementation progress and effects of the plans.

NCDs prevention and control actions targeting the different stages of the full-life cycle should be advanced. Outside of genetic factors, NCD risk factors show a gradual accumulation process. Highly targeted strategies, measures, technologies, methods, and humanistic and psychological care will be required throughout the life cycle, from the maternal nutrition and birth weight in early life, to the cultivation of healthy lifestyles in childhood and adolescence, the promotion of healthy behaviors in occupational groups, and to the all-round care for the elderly and patients with NCDs. China has elevated the life course health to the status of a national strategy. The country shall continue to actively explore and advance the establishment of a comprehensive health implementation system covering the full life cycle, which not only reflects the top-level design, but also ensures integrity and continuity.

The strategy of early prevention and health management should be implemented among NCDs high-risk population. China should implement early identification of high-risk groups of NCDs and carry out early intervention, further refine the intervention goals and paths for the behavioral risk factors of hypertension and diabetes at the primary level, and establish effective safeguard measures in terms of policy, financing mechanism, and work process. The high-risk groups are mostly the labor force population, so workplace-based intervention shall be carried out as a key strategy. It is recommended to apply the new intelligent management technology to actively test service models for the health management of high-risk groups of NCDs in the occupational population.

The allocation of resources and training personnel in rural areas should be strengthened, especially in central and western regions. China should increase the investment in rural health and step up the allocation of health resources to rural areas. Funds must be actually in place and allocated in priority to the primary level and remote areas. Because general practitioners are the

main force of the family doctor team for NCDs prevention and control at the primary level, and in view of the existing regional imbalances in the manpower and capabilities for NCDs prevention and control at the primary level, the country should strengthen the construction of professional teams and personnel training in this regard in the western region and the rural areas, and step-up incentive mechanisms for innovation talents.

Comprehensive intervention strategies for behavioral risk factors need to be carried out in key populations. The “best buys” refer to effective interventions with cost effectiveness analysis  $\leq$  I\$ 100 per disability-adjusted life years averted in low- and lower-middle income countries, which proposed by WHO are the most cost-effective intervention measures (10–11). In the future, China could focus on the two key groups of hypertensive and diabetic patients and NCDs high-risk population, and carry out pilot programs and research on comprehensive intervention strategies that reduce the use of tobacco, harmful use of alcohol, unhealthy diets, physical inactivity, and other behavioral risk factors.

Further discussions should be held on the obstacles causing some of the intervention strategies in national action plans to be hard to implement, in a bid to advance the full implementation of the best intervention strategies.

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# Corresponding authors: Wenhua Zhao, [zhaowh@chinacdc.cn](mailto:zhaowh@chinacdc.cn); Xiaofeng Liang, [liangxf@jnu.edu.cn](mailto:liangxf@jnu.edu.cn).

<sup>1</sup> National Center for Chronic and Non-communicable Disease Control and Prevention, CDC China, Beijing, China; <sup>2</sup> NCDs Control and Prevention Society, Chinese Preventive Medicine Association, Beijing, China; <sup>3</sup> Department of Public Health and Preventive Medicine, School of Medicine, Jinan University, Guangzhou City, Guangdong Province, China; <sup>4</sup> Department of Epidemiology and Statistic, Hebei Key Laboratory of Environment and Human Health, Hebei Medical University, Shijiazhuang City, Hebei Province, China; <sup>5</sup> College of Biochemical Engineering, Beijing Union University, Beijing, China; <sup>6</sup> Disease Control and Prevention Institute, Jinan University, Guangzhou City, Guangdong Province, China; <sup>7</sup> Jinan University-BioKangtai Vaccine Institute, Jinan University, Guangzhou City, Guangdong Province, China; <sup>8</sup> National Institute for Nutrition and Health, CDC China, Beijing, China.

<sup>&</sup> Joint first authors.

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