Foreword

Accelerating Cervical Cancer Prevention and Control in China to Achieve Cervical Cancer Elimination Strategy Objectives

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Cervical cancer is one of many types of cancers that severely threaten women's health. Each year, 604,000 new cases of cervical cancer appear with 342,000 related deaths globally. China represents about 18% of global incidences and 17% of global deaths (*1*). The China Cancer Registry's annual report determined that, in 2020, world-standardized incidence rate of cervical cancer was 11.35 per 100,000 women — accompanied by a mortality rate of 3.42 per 100,000 women in China; further, both have demonstrated upward trends (*2*). Thus, China faces serious challenges with cervical cancer prevention and control: creating a major public health problem that severely threatens women's health.

China has long paid great attention to the prevention and treatment of cervical cancer. In 2009, China initiated a screening program for cervical cancer and breast cancer for rural women as a National Major Public Health Service Project (*3*), leading to the improvement of cervical cancer screening coverage nationwide. Following this initiative, free screening was provided to rural women aged 35–64 years in the same project areas. Relevant agencies explored options around building screening service systems suitable for local healthcare operations and optimized the screening program's implementation plan, which gradually formed institutionalized and standardized operation mechanisms for regular cervical cancer screening services. In recent years, different local provinces and regions have also been actively exploring effective models for comprehensive prevention and treatment of cervical cancer. In many regions, cervical cancer screening has been launched as a local public welfare project, with the aim of building a full-chain, closed-loop management model for cervical cancer prevention and treatment. In addition, big data has been used to promote scientific, standardized, and precise prevention and treatment of cervical cancer. In 2019, the national cervical cancer screening program became a National Basic Public Health Service Project in order to further expand screening coverage of cervical cancer. The Healthy China Action Plan (2019–2030) further specified objectives and strategies for gradually improving screening coverage of cervical cancer, promoting Human Papillomavirus (HPV) vaccination, and improving the accessibility of HPV vaccines (*4*).

With advances in science and technology, and improved prevention and control measures, it has been proven that the incidence and mortality of cervical cancer can be greatly reduced (or even eliminated) through multi-pronged prevention measures. In November 2020, the World Health Organization (WHO) officially released the Global Strategy for Accelerating the Elimination of Cervical Cancer as a Public Health Problem, which depicted the grand vision of eliminating cervical cancer by the end of this century. The strategy proposed the goal of "90-70-90", which stated that, by 2030, 90% of girls will have completed HPV vaccination by the age of 15; 70% of women will have been screened for high-precision tests by the age of 35–45; and 90% of women with cervical precancerous lesions and cervical cancer will have received treatment (*5*). China has actively responded to the WHO strategy and prioritized the prevention and control of cervical cancer. In the newly released China Women's Development Guidelines (2021–2030), China clearly identified objectives including raising women's awareness of cervical cancer prevention and treatment, continuously improving the prevention and treatment capacity for cervical cancer, and achieving 70% screening coverage of targeted female age groups (*6*). To effectively achieve these objectives, several strategies and measures were also recommended as follows. First, China must increase the dissemination of health knowledge among women and improve public awareness of core knowledge about cervical cancer prevention and treatment. Second, China needs to actively promote free HPV vaccination for school-aged girls in areas where conditions permit, while gradually increasing the HPV vaccination rate for girls aged 9−14 years, as well as promote pilots and accelerate public health campaign publicity. Third, China should continue to implement women's cervical cancer screening programs and comprehensively accelerate the improvement of cervical cancer screening rates among women. Fourth, China has to strengthen innovative applications of cervical cancer screening and diagnostic technologies, explore screening methods and strategies suitable for China, focus on improving the

screening and service capacities of local institutions, strengthen the building of information management systems and big data applications, and strengthen quality control, monitoring, and evaluation. Finally, China needs to improve the tracking and management of those with abnormal screening results, strengthen the connectivity between screening and follow-up diagnosis and treatment services, and promote early diagnosis and treatment (*7*).

Given the massive number of women in China, as well as regional imbalances of health resources, it has been found that the provision of basic services in cervical cancer (vaccination, screening, and treatment) is still lacking. HPV vaccination has begun only recently and faces a supply shortage due to insufficient domestic production capacity, while HPV vaccination rate in the targeted 9–14 age groups remains quite low. Women's awareness of cervical cancer screening as well as screening coverage rates are both low, and gaps exist in the provision of high-precision screening techniques and system management that ensures quality control of screening and follow-up treatment. China still faces many challenges in trying to meet the objectives of the cervical cancer elimination strategy. It is essential that cervical cancer elimination models are adjusted to suit China's needs and current circumstances, accommodating the different developmental phases of regions in particular, in order to help achieve China's goal of the elimination of cervical cancer.

This Weekly issue convened a special issue on cervical cancer prevention and control. The China Cancer Registry team was invited to analyze age-specific characteristics and trends, as well as the age-period-cohort (APC) effects of incidence and mortality of cervical cancer in China using their long-term data (*8*). Wang's team applied China's Chronic Disease and Nutrition Surveillance data to estimate the latest screening coverage rates of cervical cancer in China, demonstrating regional and provincial differences as well as the effects of age, education, occupation, income, and health insurance on screening service utilization (*9*). Bao et al. multicentric clinical study aimed to evaluate the effects of multiple screening strategies and the prevalence of human papillomavirus infection in women with precancerous lesions (*10*). The study provides ample evidence for the future implementation of HPV-based screening and vaccination strategies at the population level. Qiu's team analyzed the distribution of high-risk HPV subtype infections using local HPV screening data (*11*). Characterizing the epidemiological trends of HPV subtypes is beneficial to the identification and follow-up of high-risk populations as well as provides scientific support for precise prevention and control measures for cervical cancer.

These articles provide evidence from multiple aspects of surveillance and research on the prevention and control of cervical cancer in China, including the trends and characteristics of cervical cancer incidence and mortality across different time periods and different regions (urban and rural areas), the distribution of high-risk HPV subtype infections across populations of women, the association between different HPV infection patterns with high-grade cervical precancerous lesions before the advent of large-scale HPV vaccinations, and the phased effect and gap of current implementation of cervical cancer screenings in China. These data and research recommendations are extremely important for identifying target population groups for prevention and control measures, exploring suitable screening strategies, achieving precise prevention and control, and proposing future, multi-tier cervical cancer prevention and control models that suit regions in different developmental phases in China. This special issue calls for the joint efforts of all parties to continue to reduce the threats of cervical cancer to women's health and lives so that one day cervical cancer might be eliminated for good.

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