



Journey of the elimination of cervical cancer in China

Lihui Wei , Chao Zhao 

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Cervical cancer is the most common malignant tumour of the female lower reproductive tract,¹ which seriously threatens the health of Chinese women. According to data released by China's National Cancer Center in 2023, new incident cases of cervical cancer amounted to 155 700, with 55 700 deaths. Among women aged 15–44, both the incidence and mortality rates of cervical cancer rank third highest among female malignancies in China.²

PREVENTION OF CERVICAL CANCER IN CHINA

In November 2020, the WHO released the 'Global strategy to accelerate the elimination of cervical cancer as a public health problem'.³ The Chinese government has launched actions to accelerate the implementation of this strategy. The National Health Commission of the People's Republic of China, along with 10 other ministries, released the 'Eliminate Cervical Cancer Action Plan (2023–2030)',⁴ outlining the key objectives for 2025 and 2030. By 2025, these objectives include piloting the promotion of human papilloma virus (HPV) vaccination for girls, achieving a 50% screening rate for cervical cancer among school-age females and ensuring a treatment rate of 90% for patients with cervical cancer and precancerous lesions. By 2030, the focus will continue promoting HPV vaccination among school-age females, increasing the screening rate to 70% and maintaining a treatment rate of 90% for patients with cervical cancer and precancerous lesions. The issuance of these documents has significantly advanced cervical cancer prevention and treatment efforts in China.

PROMOTING HPV VACCINATION AMONG ADOLESCENT GIRLS

Currently, China offers five HPV vaccines,⁵ including bivalent (bv) HPV vaccine (Cervarix), quadrivalent (qv) HPV vaccine (Gardasil), 9-valent (9v) HPV vaccine

(Gardasil-9) and two domestically produced bvHPV vaccines (Cecolin and Walrinvax), applicable to females aged 9–45. The bv and 9v HPV vaccines can be administered in two doses to girls aged 9–14. Rigorous randomised controlled trial (RCT) studies in China have demonstrated the favourable immunogenicity, and efficacy in preventing persistent HPV infection and cervical intraepithelial neoplasia grade 2 and above lesions, as well as the safety of these vaccines.⁶

However, the current HPV vaccination in China is voluntary, self-financed and not included in the national immunisation programme. The administration is managed by the Chinese Center for Disease Control and Prevention. The vaccination coverage is currently low, only 3% females had been vaccinated three years after HPV licensure in China in 2019.⁷ There is an urgent requirement to enhance education on HPV vaccines, intensify research and development initiatives, expand production capabilities, and promote extensive utilization of HPV vaccines across China.

Formulating consensus and guidelines tailored to China's national conditions, experts have reached a consensus on the immunological prevention of HPV-related diseases⁸ and the clinical application of the HPV vaccine.⁹ Driven by the Healthy City in China pilot policy, participating cities are now implementing government-led HPV vaccination programmes.¹⁰ Many regions have successfully developed and implemented HPV vaccination programmes targeting girls aged 13–14, facilitated through multiparty cooperation involving government, communities, schools and medical institutions, which conduct extensive health education campaigns for both students and parents. To date, vaccination programs that are either complimentary or subsidized have been initiated in 44 urban centers and more than 25 districts across 7 provinces, specifically targeting school-aged girls.¹¹



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Department of Obstetrics and Gynecology, Peking University People's Hospital, Beijing, China

Correspondence to

Professor Lihui Wei, Peking University People's Hospital, Beijing, China; weilhpku@163.com



PROMOTING CERVICAL CANCER SCREENING FOR CHINESE WOMEN

Over the past two decades, China has undertaken substantial efforts to promote cervical cancer screening. In 2009, a free screening programme for cervical cancer was initiated in rural areas, resulting in over 100 million individuals being screened to date.¹²

Despite these efforts, cervical cancer screening coverage remains inadequate. In 2018–2019, the screening rate among women aged 35–44 was 43.4%, and among women aged 35–64, it was 36.8%,¹³ falling short of the WHO's recommended 70% coverage rate. Public education campaigns are crucial to enhance awareness of the importance of cervical cancer screening. Moreover, there are disparities in provincial medical resources, with a shortage of high-quality cytologists and pathologists.

According to the results of RCT in China, HPV as a primary screening method is superior to cytological screening.¹⁴ Several associations have jointly formulated the 'Chinese Cervical Cancer Screening Guidelines', proposing HPV detection as the primary screening method for cervical cancer.¹⁵ The promotion of HPV as the preferred screening method is being carried out nationwide, along with training initiatives aimed at enhancing standardised operational techniques and improving cytology, colposcopy and pathology levels.

ACTIVELY PROMOTE HPV VACCINATION AND CERVICAL CANCER SCREENING

Considerable progress has been achieved in the prevention and control of cervical cancer in China. In terms of primary prevention, the availability of five HPV vaccines and the exploration of various vaccination procedures have significantly enhanced accessibility and coverage.⁶ Some regions have pioneered free vaccination trials, further expanding vaccine availability.

In terms of secondary prevention, China launched the 'two cancers' screening programme for rural women in 2009, encompassing cervical cancer among its priorities. Additionally, the implementation of cervical cancer screening policies has bolstered efforts to detect and treat the disease at early stages. It also emphasised that regular cervical cancer screening is still necessary after HPV vaccination.

Adopting a cervical cancer elimination model perspective, the emphasis lies in reinforcing vaccination and cervical cancer screening initiatives, with the ambitious goal of eliminating cervical cancer by 2047. According to model-based predictions, the optimal strategy entails achieving 95% HPV vaccination coverage and 90% cervical cancer screening rates. Implementation of this strategy could potentially result in a significant reduction in the age-standardised incidence of cervical cancer in urban and rural China by 2046 and 2050. This reduction would translate into fewer than 4 cases per 100 000 women, effectively eliminating cervical cancer and preventing

approximately 7.51 million women from developing the disease, ultimately averting 2.53 million deaths.¹⁶

SEVERAL ISSUES TO BE EXPLORED IN HPV VACCINATION

Currently in China, adult women are recommended to receive three doses of the HPV vaccine, while girls aged 9–14 receive two doses (bivalent and 9-valent HPV vaccine). Given the current low vaccination rates, the issue of catch-up HPV vaccination has not been explicitly addressed.

Due to the absence of data on the efficacy of single-dose vaccination in Chinese women, national recommendations in China continue to advise three doses for adult women and two doses for girls aged 9 to 14 years, as specified in the package insert instructions approved by the National Medical Products Administration (NMPA). This guidance applies to both bivalent and 9-valent HPV vaccines.

Currently, HPV vaccination for males is not accessible in China. Clinical trials for the 9-valent vaccine in males are ongoing, and we anticipate the early authorization of the HPV vaccine for males in the future.

SUMMARY

With its vast population, China faces significant challenges in the prevention and treatment of cervical cancer. However, the country is embarking on a new era of cervical cancer control with the introduction of HPV vaccines. By combining vaccination with cervical cancer screening, China is taking proactive steps towards eliminating cervical cancer. While the journey towards elimination is long, concerted efforts from the government, social groups, and medical professionals will undoubtedly lead China to achieve this critical goal.

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ORCID iDs

Lihui Wei <http://orcid.org/0000-0002-2478-8790>

Chao Zhao <http://orcid.org/0000-0001-8430-3946>

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