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NATIONAL IMMUNIZATION PROGRAMME

OVERVIEW

Launched in 1978, China's Expanded Programme on Immunization (EPI) has been a highly successful and cost-effective public health intervention. Hundreds of millions of children have been protected from vaccine-preventable diseases. Major achievements made by the programme include:

- A 98 per cent decrease in mortality from and incidence of major infectious diseases [poliomyelitis (hereafter 'polio'), measles, tetanus, diphtheria and pertussis] between 1978 and 1995.
- China achieved universal childhood immunization in 1990, which means that all provinces and counties in the country reached 85 per cent coverage of Bacilli Calmette-Guérin vaccine (BCG), oral polio vaccine (OPV), diphtheria, pertussis and tetanus vaccine (DPT) and measles vaccine for 1-year-old children.¹
- An 85 per cent coverage of BCG, OPV, DPT and measles vaccines for 1-year-old children in every township in China in 1996.²
- In 2000, China achieved polio-free status. Though there was a subsequent outbreak following the importation of wild poliovirus in 2011 in Xinjiang, the Government immediately adopted a variety of response measures, including carrying out several rounds of supplementary immunization activities (SIAs) for polio in the region, which helped to prevent the circulation of wild poliovirus and stopped the epidemic.³ In November 2012, WHO affirmed China's polio-free status.
- In 2012, WHO declared that maternal and newborn tetanus had been eliminated in China.
- A dramatic fall in hepatitis B infection rates among young children since the addition of the hepatitis B vaccine to the immunization programme in 2002. According to the Seroepidemiologic Survey of Hepatitis B Virus Infections in 2014, the prevalence of the hepatitis B surface antigen among children under five decreased to 0.32 per cent, further testament to the success of China's immunization programme.

Aimed at benefitting more children and promoting universal immunization for children, the State Council ratified the revised *Law of the People's Republic of China on Prevention and Treatment of Infectious Diseases* in 2004, making routine immunization for children free of charge. In 2007, the Government of China expanded the types of vaccines covered by the National Immunization Programme (NIP) to protect children from 12 infectious diseases.

Besides sustaining the immunization programme through policy support, China has been making technical breakthroughs in the development of new vaccines, such as the world's first hepatitis E vaccine, Sabin inactivated polio vaccine (Sabin-IPV), and inactivated enterovirus type 71 (EV71) vaccine, which have been approved and launched on the market. A number of locally produced vaccines, such as live attenuated Japanese Encephalitis vaccine, influenza vaccine, bi-valent OPV, and inactivated hepatitis A vaccine, have been included on the list of WHO prequalified vaccines.

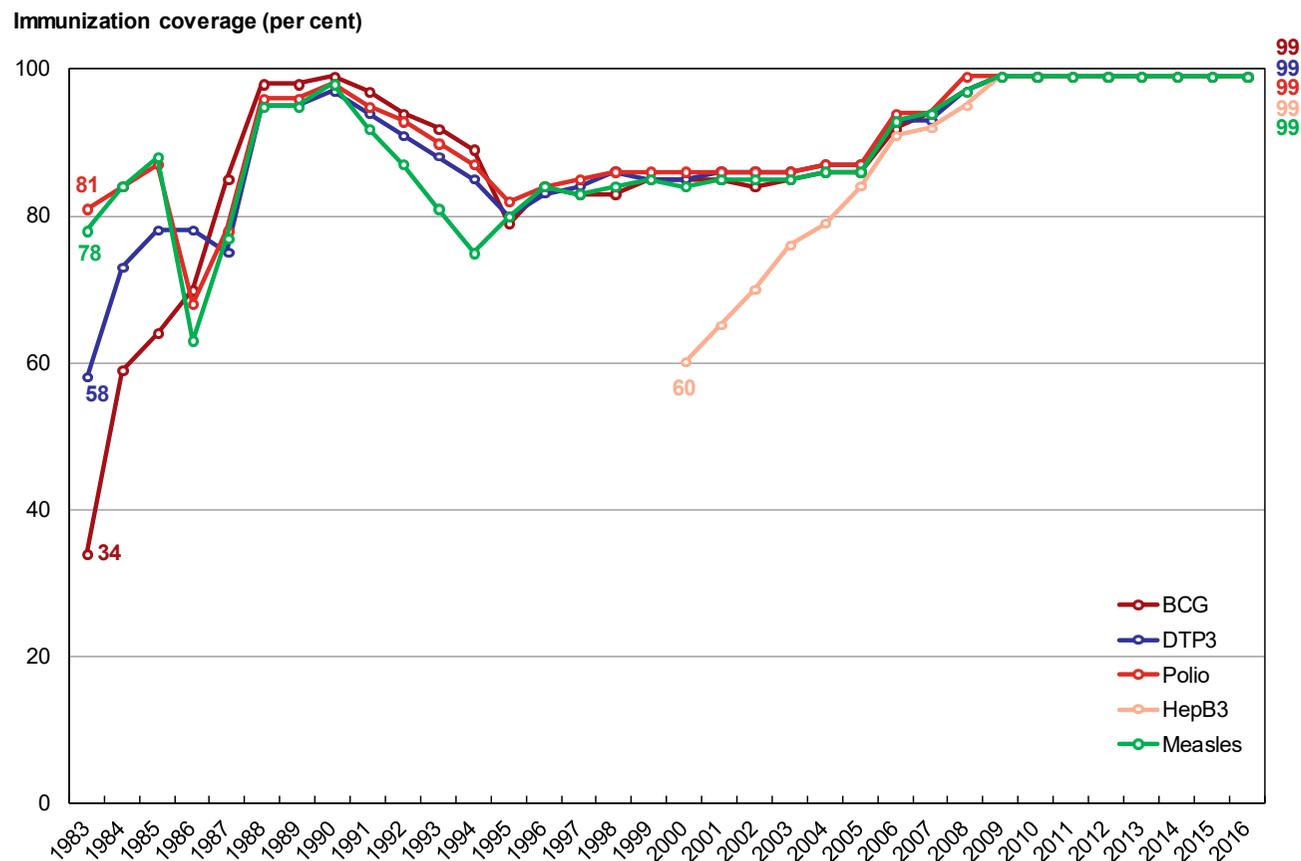
Since 1 May 2016, China has adopted a new strategy for polio immunization in response to the Global Polio Eradication Initiative. The new strategy requires at least one dose of IPV to be introduced into the childhood immunization schedule and a switch from tri-valent OPV to bi-valent OPV. This strategy has served to both decrease the incidence of vaccine-derived polioviruses and reduce the risks of wild poliovirus importation and circulation.⁴ The locally produced polio vaccines played a vital role in the introduction of IPV and the cessation of trivalent OPV.

In October 2017, the first National Immunization Advisory Committee (NIAC) was established. Responsible for providing advice to the development and revision of major national immunization policies, the NIAC reviews and develops resolutions for adjusting the types of vaccines in the NIP, and revising the immunization schedules in the programme, based on a comprehensive assessment of evidence such as the burden of vaccine-preventable diseases, and the safety, effectiveness, health economic evaluation, production and supply capacity of vaccines. It plays an active role in promoting the inclusion of new vaccines into the NIP, which can effectively reduce under-five mortality on the basis of collecting, compiling and analysing scientific evidence, including type II vaccines such as pneumococcal, Haemophilus Influenzae Type b (Hib) vaccine and rotavirus vaccines.

Since the implementation of health sector reform in 2009, and in recognition of the previously inadequate attention paid to immunization in the public health service package, the central government increased funding for the NIP. However, challenges remain, as there are insufficient operational funds and human resources to administer the increased number of vaccines and the corresponding expanded number of surveillance activities. The importance of immunization as the foundation of a basic public health service programme has been weakened; there is limited capacity in terms of the number and expertise of health personnel; some areas have an inadequate vaccine supply chain and cold chain management; the roll-out of new vaccines in some western provinces and remote areas is relatively slow; and the geographical accessibility and distribution of the population also pose hurdles to the delivery of quality immunization services. Generally speaking, the implementation of the immunization programme at sub-national levels is still variable, with some areas still under-served.

As a result of high immunization coverage, the incidence of and mortality from vaccine-preventable diseases has dropped. Media coverage of isolated negative vaccine incidents has dampened public motivation for and confidence in vaccines and vaccination, with the public paying increasing attention to vaccine safety, while showing lower levels of awareness of immunization. Therefore, immunization coverage of certain vaccines has fallen and the immunization programme in China has experienced negative impacts.

Figure 4.1
Immunization coverage
of five vaccines among
1-year-olds, 1983–2016

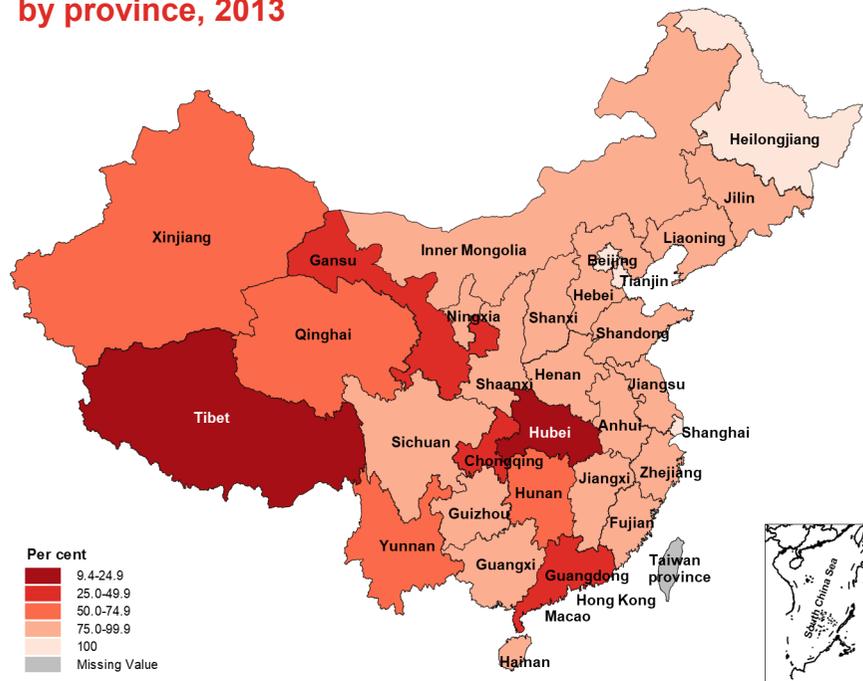


Source: National Health Commission (formerly the National Health and Family Planning Commission), WHO and UNICEF, *Joint Report on Child Immunization Coverage*, 2017

Figure 4.1

In the early 1980s, coverage of some vaccinations was as low as 34 per cent. Through the EPI, national vaccination coverage reached above 90 per cent by the early 1990s. A slight drop in coverage was noted during a following period – a result of reduced financial investment from the Government and an increasing reliance on out-of-pocket contributions to cover some of the costs related to immunization services. In 2002, hepatitis B was introduced into the National Immunization Schedule. In 2004, the Government began to implement the revised *Law on Prevention and Treatment of Infectious Diseases* that made routine immunization services free of charge for children. Vaccination coverage has since risen accordingly. Vaccination coverage of BCG, DTP3, polio, HepB3 and measles have all reached 99 per cent since 2009.

Figure 4.2
Percentage of townships with NIP vaccination coverage ≥ 90 per cent, by province, 2013



Source: ZHENG Jingshan, et al., 'Immunization Coverage of the National Immunization Program Vaccines at the Township Level, Based on a Survey Conducted by Provincial CDCs in China, 2013', *Chinese Journal of Vaccines and Immunization*, vol. 20, no. 6, 2014, pp. 492–498, 546

Figure 4.2

China's national goal in 2015 was that vaccination coverage for children of an appropriate age should reach over 90 per cent at the township level. The immunization coverage survey conducted by provincial centers for disease control and prevention (CDCs) in 2013 focused on eight NIP vaccines, including BCG, OPV, DTP, measles-containing vaccine, hepatitis B, group A meningococcal polysaccharide, Japanese Encephalitis, and live attenuated hepatitis A. The survey showed various progress among provinces, with some under-served areas in central and western regions.

Figure 4.3
Percentage of townships with hepatitis B vaccination coverage ≥ 90 per cent, by province, 2013

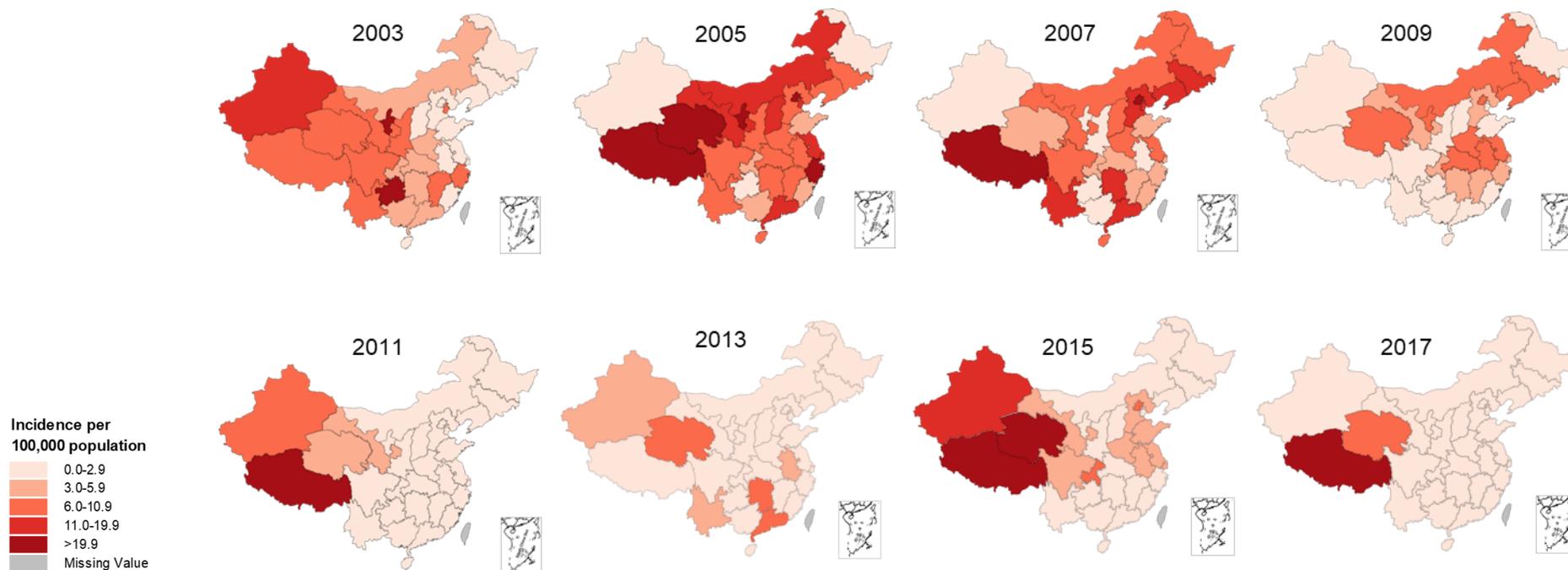


Source: ZHENG Jingshan, et al., 'Immunization Coverage of the National Immunization Program Vaccines at the Township Level, Based on a Survey Conducted by Provincial CDCs in China, 2013', *Chinese Journal of Vaccines and Immunization*, vol. 20, no. 6, 2014, pp. 492–498, 546

Figure 4.3

Upon the completion of the China-GAVI (Global Alliance for Vaccines and Immunization) Project, the Government has continued to strengthen hepatitis B vaccination for children, with stable supplies and improved immunization capacity. The coverage of the hepatitis B birth dose for newborns and full-course vaccination coverage of the hepatitis B vaccine among 1-year-olds remain high, with gaps narrowing gradually across the regions and between urban and rural areas. Based on the immunization coverage survey conducted by provincial CDCs in 2013, hepatitis B vaccination coverage reached over 90 per cent of the target children in at least 90 per cent of townships in all provinces, apart from Tibet and Qinghai, which have relatively low hepatitis B vaccination coverage.

Figure 4.4
Measles incidence, 2003–2017



Source: China CDC, National Measles Surveillance Reporting System, 2018

Figure 4.4

The map shows provincial-level measles incidence every two years between 2003 and 2017. Between 2004 and 2009, 27 of the 31 provinces in China conducted provincial-level SIAs for measles vaccine, followed by a national-level SIA in 2010.⁵ Afterwards, the measles incidence dropped noticeably. However, from the end of 2012, it experienced a rebound, reaching its highest level (4/100,000) in 2014, but began to fall again in 2015.⁶ In 2017, the reported incidence of measles reached a record low (0.4/100,000), mainly concentrated in Tibet and Qinghai.

National Immunization Programme

Data sources and references

- ¹ National Health Commission (formerly the National Health and Family Planning Commission), *60 Years for Disease Control and Prevention in China*, 2015, p. 259.
- ² National Health Commission (formerly the National Health and Family Planning Commission), *60 Years for Disease Control and Prevention in China*, 2015, p. 260.
- ³ China CDC, 'One Year for China's Effort to Interrupt the Circulation of Imported Wild Poliovirus', 16 October 2012, http://www.chinacdc.cn/zxdt/201210/t20121016_70677.html, accessed May 2018.
- ⁴ National Health Commission (formerly the National Health and Family Planning Commission), 'China Responded Positively to WHO's Resolution to Implement the New Strategy for Polio Vaccine', 29 April 2016, <http://www.nhfpc.gov.cn/jkj/s3582/201604/8c760a934d5b4d41a81752915c58d304.shtml>, accessed April 2018.
- ⁵ WHO Western Pacific Region, 'Measles Factsheets', <http://www.wpro.who.int/china/mediacentre/factsheets/measles/en/>, accessed May 2018.
- ⁶ SU Qiru, et al., 'Epidemiology of Measles in China, 2015–2016', *Chinese Journal of Vaccines and Immunization*, vol. 24, no. 2, 2018, pp. 146–151.

