



The role of the China Experts Advisory Committee on Immunization Program

Jingshan Zheng, Yuqing Zhou, Huaqing Wang, Xiaofeng Liang*

National Immunization Program Department, Chinese Center for Disease Control and Prevention, No. 27, Nanwei Road, Xuanwu District, Beijing 100050, China

article info

Keywords:

Advisory committee
Immunization
Decision-making
Evidence
China

abstract

The Experts Advisory Committee on Immunization Program (EACIP) of China was founded in 1982, and currently consists of 33 experts in immunization and related fields, selected by the Ministry of Health, to provide advice and guidance on the control of vaccine-preventable diseases. The main tasks of the EACIP are to advise on the national immunization schedule, to participate in the drafting and review of technical documents, and to participate in field supervision and staff training. In 2007, the EACIP used evidence-based methods to formulate a revised national immunization schedule. The EACIP has played and is playing an increasingly important role in guiding immunization policy in China.

© 2010 Published by Elsevier Ltd.

1. Background

China initiated the National Expanded Program on Immunization (EPI) in 1978. The targeted children were vaccinated with Bacillus Calmette-Guérin (BCG) vaccine, oral polio vaccine (OPV), measles vaccine (MV) and diphtheria, tetanus and pertussis (DTP) vaccine according to the immunization schedule recommended by the World Health Organization (WHO). The coverage of children with these three vaccines reached the goal of 85% at provincial, county, and township level in 1988, 1990, and 1995, respectively. Cases of tuberculosis, polio, measles, pertussis, diphtheria, and tetanus decreased by about 300 million, and an estimated 4 million lives were saved by the program over the 30 years following its launch [1]. The Western Pacific Regional Office (WPRO) of the WHO, where China is located, certified China to be Polio-free in 2000. There have been no reported cases of polio due to wild poliovirus in China since 1994 [2].

Comparing data collected prior to the implementation of EPI, the reported national measles morbidity and mortality rates have declined by more than 95% in 1990. The reported incidence of measles dropped to a historically low level of 5/100,000/year in 1995. The reported incidence of diphtheria decreased from 10 to 20/100,000/year in the 1950s to <0.01/100,000/year in the 1990s,

while pertussis decreased from 100 to 200/100,000/year during the 1960–1970s to 0.37/100,000/year in 2004. The annual number of reported cases of diphtheria and pertussis ranged from 0 to 11 and 3000–6000, respectively, during 2003–2008 [1].

China integrated hepatitis B vaccine (HBV) into the national EPI program in 2002. Following the implementation of the hepatitis B immunization program, the hepatitis B surface antigen (HBsAg) seroprevalence rate for the population aged 1–59 years declined from 9.8% in 1992 to 7.2% in 2006, and for children age 1–4 years it was 0.96% [3].

Overall, implementation of the national EPI has played an important role in the protection of the population's health, contributing to increased average life expectancy and to the creation of large economic and social benefits. In 2007, China integrated into the national immunization program vaccines against meningococcal meningitis, Japanese encephalitis, hepatitis A, rubella and mumps. These vaccines will play an important role in advancing the control of these vaccine-preventable diseases.

China's Experts Advisory Committee on Immunization Program (EACIP) was established in 1982 and has evolved continually since then throughout the implementation of EPI. It has become a key technical advisory body and plays a vital role in formulating national policy and providing technical guidance to EPI and other immunization issues.

2. Structure and mechanism of the China EACIP

2.1. The history of the China EACIP

China's EACIP was established in August 1982 as a group of experts under the Committee on Medical Sciences of the Ministry of Health (MOH). In June 1988 the EACIP became a separate committee

Abbreviations: AFP, Acute Flaccid Paralysis; BCG, Bacillus Calmette-Guérin; CCDC, Chinese Center for Disease Control and Prevention; DTP, diphtheria, tetanus and pertussis; EACIP, Experts Advisory Committee on Immunization Program; EPI, Expanded Program on Immunization; HBV, hepatitis B vaccine; HBsAg, hepatitis B surface antigen; MV, measles vaccine; MOH, Ministry of Health; NIP, National Immunization Program; NITAG, National Immunization Technical Advisory Group; OPV, oral polio vaccine; SIA, supplementary immunization activity; WPRO, Western Pacific Regional Office; WHO, World Health Organization.

* Corresponding author. Tel.: +86 10 63176737; fax: +86 10 63171724.

E-mail address: liangxf@hotmail.com (X. Liang).

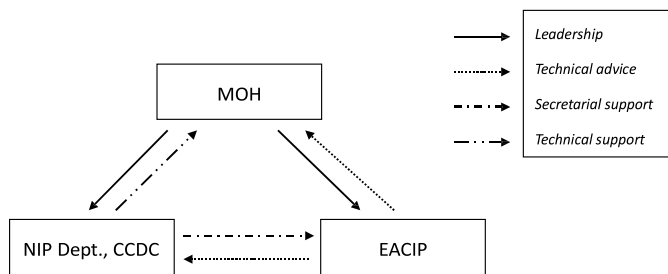


Fig. 1. The relationship between the Experts Advisory Committee on Immunization Program (EACIP), the Ministry of Health (MOH), the National Immunization Program (NIP) and the Chinese Center for Disease Control and Prevention (CCDC).

consisting of 26 experts. In October 1992 and March 1997, the China EACIP members were reelected and the membership expanded to 28 and 30 experts, respectively, appointed by the MOH. The latest election to the China EACIP was made in October 2004, as described below.

2.2. Members and duty of the EACIP

The members of the EACIP are nominated and appointed by the MOH. Tenure is valid until reelection. The Chair and assistant Chairs are similarly appointed although they serve in an honorary capacity. From October 2004, the EACIP consisted of 33 members: one Chair, three assistant chairs, 26 members with expertise in specific disciplines, and three secretaries. Membership selection criteria include: expertise in research and development of vaccines, testing and approval of vaccines, pediatrics, infectious diseases, immunology, management of health policy, public health, epidemiology and statistics, ethics, and health law. In addition, consideration is given to membership being representative of different regions and social and economic status. EACIP does not have any members in observer status, and none of its members are officers of the MOH.

The duties of the EACIP are wide ranging and include: formulation and modification of immunization regulation and strategies; advising the MOH on important strategies related to immunization; conducting field surveys and assessments to aid decision-making; and providing recommendations regarding personnel training and scientific exchange under the leadership of the MOH.

2.3. The main mechanism of EACIP activities

The China EACIP carries out its role to provide technical advice relevant to immunization under the leadership of the MOH. The Department of National Immunization Program (NIP) of the Chinese Center for Disease Control and Prevention (CCDC) is responsible for the routine secretarial work of the EACIP. Its functions include obtaining background documents and literature collection, data review, assisting the MOH to set the agenda, coordinating meeting logistics, writing minutes, drafting reports, routine communication with EACIP members, and other activities. Fig. 1 shows the relationship between EACIP, MOH and CCDC.

The EACIP carries out its activities through four different mechanisms: (1) plenary meetings involving all members, which are held once annually and initiated by the MOH; (2) working group meetings involving only some of the EACIP members, which are held by the MOH and the CCDC to resolve one or more specific technical issues; (3) correspondence meetings, which involve the circulation of written papers and documents about issues that need to be resolved with the collection of opinions of the EACIP experts; and (4) specific field surveys and supervision, with relevant experts participating at the invitation of the MOH or the CCDC. During each

of these activities, members should avoid participating if there is considered to be any obvious conflict of interest.

Currently there is no formal publication to disseminate the recommendations and decisions of the EACIP to the public, though formal minutes are recorded and are available for all participants. The EACIP submits its deliberations in the form of a proposal or memorandum to the MOH or the CCDC. After due consideration, the MOH or the CCDC will disseminate its policy or recommendations as a formal technical guideline. The MOH and CCDC can accept the entirety or just a part of the recommendations made by the EACIP.

3. Role of the China EACIP

The main tasks of the EACIP are to advise on the national immunization schedule, to participate in the drafting and review of technical documents, and to provide resource persons in the field supervision and staff training for some specific activities.

3.1. An evidenced-based review to identify priority diseases for vaccination and formulation of the immunization schedule

As noted earlier, China initiated the national EPI in 1978 with the introduction of universal infant vaccination with BCG, OPV, MV and DTP vaccines. In 2002, China introduced hepatitis B vaccine into the national EPI. In 2007, vaccines against rubella, mumps, meningococcal serotype A and A + C, Japanese encephalitis, and hepatitis A were added to the routine schedule. These changes resulted in an increased number of vaccines requiring appropriate scheduling from both the programme logistics and user perspective. In addition, other improvements were made in the formulation, administration, and dosage of vaccines, e.g., monovalent measles vaccine was replaced by trivalent Measles-Mumps-Rubella (MMR) vaccine, and DTP with whole cell pertussis antigen was replaced by acellular DTaP vaccine. The national EPI also expanded beyond children to include adults, with the potential for vaccines for haemorrhagic fever, leptospirosis, and anthrax for specific high-risk populations. The China EACIP has played an important role in the formulation and modification of the immunization schedule to accommodate vaccines it has recommended previously.

In 1986, the EACIP suggested modifications to the immunization schedule based on the scientific data and evidence to ensure maintenance of high coverage, lower program costs, and fewer vaccination visits by implementing more efficient schedules that combined multiple immunizations at the same visit.

In 2005, the EACIP recommended changes in the two-dose immunization schedule for measles vaccine from 8 months and 7 years to 8 months and 18 months. At the same time a recommendation was made to increase the dose from 0.2 ml to 0.5 ml to improve vaccine effectiveness.

The significant expansion of China's immunization schedule in 2007 was based on a detailed review of the literature and available evidence. The EACIP identified over 16,623 papers and documents related to vaccines against measles, mumps, rubella, meningococcal meningitis, Japanese encephalitis, and hepatitis A. Using a systematic review process and meta-analysis, 1550 papers were selected according to pre-defined criteria, and 202 papers were analyzed in detail (Table 1). Using these data the EACIP analyzed the disease burden, epidemiologic characteristics, biological characteristics of the target vaccines, and supply and availability of vaccines. Data on disease associated morbidity, mortality, disability, socioeconomic distribution, and public health burden were analyzed to facilitate prioritization of diseases and potential vaccines [4–7]. This evidenced-based exercise enabled the EACIP to recommend

Table 1
Summary of meta-analyses of articles of relevance to the Expanded Immunization Program undertaken by China's Experts Advisory Committee on Immunisation Program in 2007.

Vaccine	Potential papers identified	Papers obtained for review	Papers providing information for inclusion in recommendations	Outcome
Measles-Mumps-Rubella	2362	487	38	Integrated in EPI
Meningococcal meningitis	5706	368	51	Integrated in EPI
Japanese encephalitis	6590	453	46	Integrated in EPI
Hepatitis A	1965	242	67	Integrated in EPI
Total	16,623	1550	202	

Table 2
China's immunization schedule in 2007.

Vaccine ^a	Age and dose number												
	Birth	1m	2m	3m	4m	5m	6m	8m	18m	2y	3y	4y	6 y
HepB	1	2					3						
BCG	1												
OPV			1	2	3							4	
DPT				1	2	3			4				
DT													1
MR (MV)								1					
MMR (MM, MV)									1				
JE-a								1		2			
Men-A							1, 2 ^b						
Men A + C											1		2
HepA-a									1				
JE-i ^c								1, 2 ^d	3				4
HepA-i ^c									1	2			

^a BCG: Bacillus Calmette-Guérin; OPV: oral poliovirus vaccine; DPT: Diphtheria-Pertussis-Tetanus vaccine; DT: Diphtheria-Tetanus vaccine; MR(MV): Measles-Rubella vaccine; MV: Measles vaccine; MMR: Measles-Mumps-Rubella vaccine; MM: Measles-Mumps vaccine; MV: measles vaccine; JE-a: Japanese encephalitis live attenuated vaccine; Men-A: Group A meningococcal polysaccharide vaccine; Men A + C: Group A + C meningococcal polysaccharide vaccine; HepA-a: hepatitis A attenuated vaccine; JE-i: Japanese encephalitis inactivated vaccine; HepA-i: hepatitis A inactivated vaccine.

^b Interval of 3 months between 1st and 2nd dose.

^c Optional vaccine.

^d Interval of 7–10 days between 1st and 2nd dose.

priority diseases and priority vaccines to be added to the immunization schedule. The EACIP submitted these recommendations to the MOH for consideration and further development of China's current immunization policy and immunization schedule (Table 2).

3.2. Participation in drafting and review of technical documents

The EACIP presides over or participates in the drafting and review of technical guidelines and proposals related to immunization policy, regulation, and disease control programs. Over the years, a number of regulations and technical guidelines have been disseminated by the MOH or the CCDC as formal documents. The public, physicians, and public health doctors can obtain this information from the MOH (<http://www.moh.gov.cn>) and CCDC (<http://www.chinacdc.net.cn>) websites. The following sections list the documents developed and reviewed during recent years:

3.2.1. Policies and regulations

- Regulations on Management of Vaccine Circulation and Inoculation (2005);
- Regulations on Management of Vaccine Storage and Transportation (MOH and SFDA 2006);
- Technical Appraisal on Adverse Events Following Immunization (MOH, 2008).

3.2.2. Working guidelines

- Guideline of Immunization Technique (MOH, 2005).

3.2.3. Disease control programs

- The National Plan of Action for the Elimination of Measles, During the Years 2006–2012;
- The National Plan on Hepatitis B Prevention and Control During the Years of 2006–2010;
- The National Plan of Action to Maintain China Polio-free During the Years of 2003–2010.

3.2.4. Technical proposals

- Implementation Proposal on Expansion of the Expanded Program for Immunization (MOH, 2007);
- Proposal for National Surveillance of Measles, Proposal for National Surveillance of Neonatal Tetanus;
- Proposal for National Surveillance of Acute Flaccid Paralysis (AFP);
- Proposal for National Surveillance of Routine Immunization Coverage; Notice of School Entrance Checking (by MOH, MOE, 2005).

3.3. Organizing and participating in evaluation and supervision

The EACIP organized and participated in the national immunization coverage reviews in 1988, 1991, and 1994, the national EPI review in 2004, and the national hepatitis B sero-survey in 2006. EACIP experts play an important role in developing the proposals for such surveys. The EACIP members also have provided field supervision of supplemental immunization activities (SIA), confirmed and certified China's polio-free status, and recommended mass immunization programs, e.g., provision of hepatitis A and Japanese encephalitis vaccine in earthquake-stricken areas of Sichuan province in 2008 [8].

3.4. Staff training

When requested by the MOH or CCDC, the EACIP participates in developing teaching materials and providing resource persons for different training activities organized by NIP/CCDC to strengthen staff knowledge and capacity. For example the EACIP developed the training materials for expansion of EPI in 2008, and held national training courses delivered to 1299 trainers at the provincial and prefecture levels. In addition, training courses were held at the provincial, prefecture, county and township levels attended by 434,449 EPI staff.

4. Future perspectives of the China EACIP

The China EACIP will continue to guide efforts for Chinese EPI development, such as formulating mid-term or long-term development programs, and developing mid-term and long-term working criteria of the MOH's Healthy China 2020 Plan. The EACIP will make recommendations for integrating new vaccines into EPI and the development of immunization strategies for non-EPI vaccines and adult vaccination. It is also envisaged that the regular activities of EACIP, such as the publication of the committee's activities and other outcomes, together with mechanisms to enhance the independent functioning of the committee, will be improved.

5. Conclusion

The EACIP has played and will continue to play an increasingly important role in the progress and development of immunization in China. Based on EACIP recommendations to enhance immunization activities, China has witnessed remarkable improve-

ments in health outcomes. It is envisaged that the China EACIP will continue to evolve with its members contributing through their expertise, diligence and commitment to the health of the population.

Conflict of interest statement

The authors state that they have no conflict of interest.

References

- [1] Liang X-F, Wu Z-L. Implementation of EPI for 30 years to protect hundreds of millions of people's health. *Chinese Journal of Preventive Medicine* 2008;42(Suppl):4–6.
- [2] National Committee for the Certification of Poliomyelitis Eradication in China: Documentation for the Certification of Poliomyelitis Eradication, the People's Republic of China. Document by Ministry of Health, October 2000.
- [3] Liang X-F, Bi S-L, Yang W-Z, Wang L-D, Cui G, Cui F-Q, et al. Evaluation of the impact of Hepatitis B vaccination among children born during 1992–2005 in China. *JID* 2009;200:39–47.
- [4] Wang H-Q, Sui H-T, Liang X-F. Application of meta-analysis in the evaluation of vaccines. *Chinese Journal of Vaccines and Immunization* 2007;13(6):600–3.
- [5] Wang H-Q, Sui H-T, Liang X-F. Evaluation on the influential factor of making hepatitis A vaccine immunization schedule using evidence-based medicine. *Chinese Journal of Vaccines and Immunization* 2008;14(2):138–43.
- [6] Yin D-P, Wang H-Q, Fan C-X, Zhou Y-Q, Liang X-F. Feasibility study on integrating DTaP into National Expanded Program on Immunization. *Chinese Management of Public Health* 2007;23(3):249–50.
- [7] Ning X, Li J-H, Li Y-X, Yin Z-D, Ze W-Y, Wang X-X, et al. Feasibility of meningococcal polysaccharide vaccines integrated into Chinese NIP and the foundation of immunization schedule. *Chinese Journal of Vaccines and Immunization* 2008;14(2):171–5.
- [8] Liang X-F, Yang C-M, Luo H-M, Wang H-Q, Cui F-Q, Li Y-X, et al. Analysis on mass vaccination campaign of hepatitis A vaccine and live Japanese encephalitis vaccine in earthquake areas in Sichuan. *Chinese Journal of Vaccines and Immunization* 2008;14(4):289–91.

