Pediatric Development and Challenges in China

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Immediate Past President of Chinese Pediatric Society
Beijing Children’s Hospital
Capital Medical University
Three association for children’s health in China

Chinese Pediatric Society, Chinese Medical Association 1937
Child Health Care Association, Chinese Preventive Association 1989
Chinese Pediatrician Association, Chinese Physician Association, 2005
The Role in Capacity Building of Pediatric Services
A comprehensive survey on the capacity of pediatric clinical services was carried out by the Chinese Pediatrician Association in 2010.

- It revealed that a serious shortage in the number of pediatricians, pediatric facilities and hospitals.

- Nationally there were only 0.26 pediatricians per 1,000 children.

- There was a huge mismatch between supply and demand for pediatric services. The children’s hospitals over crowded, pediatricians overworked.

- Geographic misdistribution is another severe problem, as most pediatricians practice in big children’s hospitals while very few in community services.
In early 2011, we reported survey to the media and government policy makers.

As a result, increase the numbers of children’s hospitals was included in the national health development plan and the central government developed a special budget to support the construction of children’s hospitals at various levels in the coming years. There will be a significant increase in the number of children's hospitals in recent ten years.

Programs to train primary pediatric care, pediatric resident training program and pediatric subspecialties program have been initiated.

Advocacy to the ministry of education to increase the numbers of the medical students in pediatrics.
The Role in Education\Training\Academic
14 specialty society in CPS
Annual congress and meetings
Training programs
Research network
Guidelines and consensus

http://www.cps.cma.org.cn
中华儿科杂志
- 创刊时间：1950年
- 中华医学会主办
- 被多个国内外数据库或工具书收录
  - 中国科技论文与引文数据（CSTPCD）
  - 万方数据库系统
  - 美国国立医学图书馆医学索引（MEDLINE）
  - 俄罗斯文摘杂志（AJ）
  - 生物学文摘（BIOSIS PREVIEW）
  - 癌症文摘（CANCERLIT）
  - 生物学文摘（Biological Abstracts）
Autopsy Findings in Children with Hand, Foot, and Mouth Disease

To the Editor: From May 2008 through July 2010, an epidemic of hand, foot, and mouth disease occurred in Guangxi, China. During the epidemic, some children died of progressive cardiorespiratory failure. Postmortem pathological examinations were performed for 14 patients. Reverse-transcriptase–polymerase-chain-reaction assays of various specimens (throat swabs or stool samples) were performed to detect enterovirus 71, coxsackievirus A17, and parvovirus messenger RNA. Assays for enterovirus 71 were positive in 12 patients. Assays to detect coxsackievirus A17 were positive in 1 patient, and assays to detect other enteroviruses were positive in 1 patient.

The major manifestations of the disease included fever and rash. Neurologic manifestations were noted in all patients. A startled response, myoclonic jerks, and limb trembling were the most frequent early manifestations of neurologic involvement and indicated deterioration due to the illness. As the patients’ disease progressed, seizure and coma developed, and death occurred within 1 hour to 5 days after hospitalization. Autopsy of the 14 patients showed that the brain, especially the brain stem, was most severely involved (Fig 1); these findings are consistent with the neurotropism of enteroviruses.3,5

The respiratory symptoms were mild at the...
The first original article from Chinese Pediatric Society Impact Factor in 2014: 45.217!

Pulse oximetry with clinical assessment to screen for congenital heart disease in neonates in China: a prospective study

Qu-ming Zhao MD a,b, Xiao-jing Ma MD a,b, Xiao-ling Ge MD a,b, Prof Fang Liu MD a, Prof Wei-li Yan MD a,b, Lin Wu MD a, Ming Ye MD a, Xue-cun Liang MD a, Jing Zhang MD a, Yan Gao MD a, Dr Prof Bing Jia MD a,b, Dr Prof Guo-ying Huang MD a,b, the Neonatal Congenital Heart Disease screening group²

Summary
The Expanded Program on Immunization is now fully funded by the government and provides 13 vaccines that can prevent 15 diseases.
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Age</th>
<th>Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td>0,1 month and 6 months</td>
<td>3</td>
</tr>
<tr>
<td>Bacillus Calmette Guerin (B.C.G)</td>
<td>Birth</td>
<td>1</td>
</tr>
<tr>
<td>Poliomyelitis (Polio)</td>
<td>2,3 and 4 months; 4 years</td>
<td>4</td>
</tr>
<tr>
<td>Diphtheria, tetanus, &amp; acellular pertussis (DTaP)</td>
<td>3,4 and 5 months; 18-24 months</td>
<td>4</td>
</tr>
<tr>
<td>Diphtheria and tetanus</td>
<td>6 years</td>
<td>1</td>
</tr>
<tr>
<td>Measles and rubella (or Measles)</td>
<td>8 months</td>
<td>1</td>
</tr>
<tr>
<td>Measles, mumps and rubella (MMR)</td>
<td>18-24 months</td>
<td>1</td>
</tr>
<tr>
<td>Japanese Encephalitis Vaccine, Live</td>
<td>8 months; 2 years</td>
<td>2</td>
</tr>
<tr>
<td>Meningococcal A</td>
<td>6-18 months</td>
<td>2</td>
</tr>
<tr>
<td>Meningococcal A+C</td>
<td>3 and 6 years</td>
<td>2</td>
</tr>
<tr>
<td>Hepatitis A Vaccine, Live</td>
<td>18 months</td>
<td>1</td>
</tr>
<tr>
<td>Haemorrhagic Fever with Renal Syndrome Bivalent Vaccine</td>
<td>16-60 years</td>
<td>3</td>
</tr>
<tr>
<td>Anthrax vaccine</td>
<td>high risk group</td>
<td>1</td>
</tr>
<tr>
<td>Leptospira Vaccine</td>
<td>Persons aged 7 through 60 years with contact infested water</td>
<td>2</td>
</tr>
<tr>
<td>Japanese Encephalitis Vaccine, Purified Inactivated</td>
<td>8 months (2 doses); 2 and 6 years</td>
<td>4</td>
</tr>
<tr>
<td>Hepatitis A Vaccine, Purified Inactivated</td>
<td>18 months; 24-30 months</td>
<td>2</td>
</tr>
</tbody>
</table>
2000年7月17日，国家证实委员会举行签字仪式
Milestones of Hepatitis B Vaccine in China

- 1986, Hepatitis B Vaccine was licensed
- 1992, Hepatitis B vaccine was introduced into EPI
- 2002, Hepatitis B vaccine was introduced into national EPI
  - **Every Infant Hepatitis B Vaccine Immunization**
    - Free hospital delivery
    - Cooperate with MCH, Following the principle of “Any baby delivered in the hospital has to be vaccinated”
    - Public health education to improve parents’ awareness of importance of timely HepB birth dose
    - Training, supervision and surveillance
    - Subsidy provided to the village doctor for vaccination services
  - **Nationwide catch-up vaccination among children and adolescents in China**
    - 2009-2011, 68 million children under 15 years have been vaccinated
Prevalence of HBsAg by age group in China 1979, 1992 and 2006

Sources – China National Serosurveys 1979, 1992, 2006
China was recognized by WHO for four remarkable achievements in 2012

1. Exceeding the Western Pacific Regional (WPR) goal for reduction of chronic hepatitis B

2. Eliminating neonatal and maternal tetanus

3. Successfully responding to the wild poliovirus importation-caused outbreak in Xinjiang province

4. Greatly reducing the incidence of measles
The Role in Creating a Public Child Medical Insurance System in China
Advocating to Create a Public Child Medical Insurance System in China

• In China, there is a large regional disparities in child health, particularly between poor rural areas and wealthier urban centers.

• Our strategy to narrow these disparities, including developing a public child medical insurance system to make health care affordable for all families.
• In 2007, the proposal to establish a children’s medical insurance system was accepted by the government.
• That year, the CMIS was implemented in 70 cities, and in 2010 it was expanded throughout the entire country.
• The establishment of the CMIS and the medical aid fund for catastrophic medical expenses has significantly improved the access to needed care, especially for children living in poor families.
• Free health checks for all children 0 to 3 years old and free newborn disease screening have been implemented nationwide.
The Role in Reducing Maternal and Neonatal Mortality in Rural China
The project resulted in significant improvements of maternal and child health indicators.

1. The **hospitalized delivery rate** improved significantly. In 2007, the hospital delivery rate was 86.8% in the project area, which was 47.6% higher than 2001.

2. The **maternal mortality** rate decreased significantly, dropping to 39.4 per 100,000 in 2007, a decrease of 48.2% compared with 2001.

3. Neonatal mortality decreased significantly. **Neonatal mortality** rate in the project areas in 2007 dropped to 8.4%, a decrease of 45.1% compared with 2001.

4. Neonatal tetanus incidence declined remarkably. Incidence of neonatal tetanus in 2007 was reduced to 0.06% in the project areas.
The role in Improving Nutrition in Rural China
Improving Nutrition in Rural China

Chinese nutritional studies showed:

1. Although there was a significant improvement in the nutritional status of children in China, there were still disparities related to poverty, rural areas, and ages.

2. Underweight, stunting, and anemia were still severe problems in rural areas, especially in poor rural areas.

3. The age period of 6 to 36 months was the peak time for malnutrition and this was often ignored.

4. Interventions to address feeding problems during the first 36 months are key to improving early childhood nutrition in rural areas.
Development of nutrient supplement package

• In 2001, the Chinese Center for disease Control and Prevention, Institute of Nutrition and Food Safety and Chinese Pediatrician Association proposed the program of a nutrient supplement package to meet the needs of rural 6-to-36-month-old children.

• Therefore, an infant complementary food supplement was developed and implemented.

• Daily consumption of a package is able to meet 50% to 60% of the daily nutrient requirements of infant and young children.
Provided a way to fortify inadequate homemade complementary food in poor areas

- Significantly improved the nutritional status of infants.
- Decreasing the incidence of anemia
- Increasing height-and weight-for-age z scores, and improved children’s cognitive and development quotient

The packages can be provided through:

- Donation model
- Government’s support model
- Social business model
The role in promoting better medicine
Challenges
衡量一个国家健康水平的四大指标

- 婴儿死亡率
- 5岁以下儿童死亡率
- 孕产妇死亡率
- 人均期望寿命

肺炎是导致全球5岁以下儿童死亡的首位病因

2000-2011年中国婴儿死亡率

2000-2011年中国五岁以下儿童死亡率
High caesarean delivery rate

- China has one of the highest rates of caesarean delivery in the world. Of the 16 million babies born in 2010, approximately half were by caesarean.

- Before the 1980s, the caesarean rate in China was below 5%. 10% in 1990, urban rates were as high as 20% by 1996, and continued to climb rapidly, first in urban areas, and then later in rural areas.

Caesarean delivery rate of China, 1988-2010

Figure 1. Rates of caesarean delivery in China over time.\(^4,6,8\)

Drop in Exclusive Breastfeeding Rate in China

![Graph showing the decline in exclusive breastfeeding rate from 1998 to 2013. The rate starts at 67.0% in 1998 and drops to 27.8% in 2013. The Chinese government target for 2020 is 50%, while the world average was 38% in 2013. The data is sourced from the World Bank and the National Health and Family Planning Commission.](image-url)
Increasing Incidence Rate of Preterm Birth

- The rate of preterm birth in China still lacks of accurate data:
  - 7.8%: 2005 "Chinese Journal Of Contemporary Pediatrics“ 77 hospitals
  - 7.5%: WHO 1995

- The rate of preterm birth in China has increased year by year
  - 1989: 4.15% *
  - 1997~2000: 5.995% *
  - 2005: 7.8%**
  - 2007: 8.1 %**

*(Data from 23th Annual World Congress of Pediatrics)
**(Epidemiological survey of newborns in 88 hospitals nationwide)
Increase of overweight and obesity in children under 5 years (%)

The prevalence increased by 60% in Urban, and increased by 67% in Rural

Overweight and obesity criteria for Children under 6 years old:
WHO recommended age-sex BMI overweight and obesity criteria (2007)
The comparison of overweight and obesity(%) in Children age 7-17

Overweight increased by 113%, obesity increased by 195% in Chinese children age 7-17 from 2002 to 2012

National Constitution Student Survey data
Overweight and obesity rate increases rapidly in urban children

Overweight and obesity rate in Chinese urban boy

Chen Chunming, China nutrition Policy Research report 2010
Prevalence of reported allergic diseases in infant (0-24m)

Nov 2014-Feb 2015 ◇ Field survey in 33 cities nationwide ◇ 11,950 valid questionnaires

<table>
<thead>
<tr>
<th></th>
<th>Food Allergy</th>
<th>Asthma</th>
<th>Allergic Rhinitis</th>
<th>Atopic Dermatitis</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>2.5</td>
<td>0.2</td>
<td>0.9</td>
<td>18.8</td>
<td>19.8</td>
</tr>
<tr>
<td>0-6 months</td>
<td>1.3</td>
<td>0.1</td>
<td>0.4</td>
<td>17.5</td>
<td>18.1</td>
</tr>
<tr>
<td>7-12 months</td>
<td>2.5</td>
<td>0.1</td>
<td>1.0</td>
<td>18.1</td>
<td>19.5</td>
</tr>
<tr>
<td>13-24 months</td>
<td>3.6</td>
<td>0.5</td>
<td>1.3</td>
<td>20.0</td>
<td>21.7</td>
</tr>
</tbody>
</table>
Comparison of three epidemiological survey of asthma prevalence

National collaborative group on childhood asthma management

Significant upward trend

Significant difference in different regions and cities:
- Highest in Eastern China (4.23%)
- Highest in Shanghai (>7%)


National cooperation group on childhood asthma. Third nationwide survey of childhood asthma in urban areas of China. Chinese journal of pediatrics. 2013, 51(10):729-735
Air pollution remains a major concern.

1st February, 2013

This is Tian An Men
The haze covered 1.3 million square kilometers of China
SMOKING—one of the major pollutants

• Institute for Health Metrics and Evaluation in Seattle
  Until 2012, China had the largest smoker population, which reached 281 million, accounting for 1/3 of the smokers in the planet!

• Children with maternal smoking:
  · 70% increased risk of respiratory conditions
  · 80% increased infant mortality rate
  · 5 times increased risk of sudden infant death
  · 38% increase in morbidity and hospitalization in the first year of life for pneumonia

• Infant mortality rate could have a 20% drop if all pregnant women stopped smoking by 16 week of gestation.

• Second hand and third hand smoking maybe much more harmful

- The floating population reached 236 million in 2012, accounting for 17% of the national population.

- Over 61 million left-behind children in countryside of China, covering 37.7% nationwide rural children.

- 38.37% of Chinese left-behind children, under the age of 5, are from rural area.
Real world for Chinese pediatricians

- Huge children population
- Spoiling kids for one-child policy
- Misleading of some media reports
- Pediatrician insufficiency
- Overwhelming workload
- Low income
- Short and difficult-to-achieve paid vacation
- Insufficient social education of medical sciences
- Lack of self accomplishment comparing with peers from other careers
In China, great achievements in child health care, big country, huge population, shortage of resources, large region disparities, rapid economy development, disease pattern of rich and poor

Health care reform in going on, our pediatricians are confident and will try our best to serve our children
谢谢