

U.S. CDC IN CHINA:

2010 - 2011 ANNUAL REPORT

健康民众·健康

众·健康中国



U.S. Centers for Disease
Control and Prevention
Center for Global Health

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Healthy People in a Healthy China 健康民众·健康中国

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**U.S. Centers for Disease
Control and Prevention**
Center for Global Health



U.S. CDC: IMPROVING LIVES IN CHINA AND

In our interconnected world, our health is linked with the health of individuals and communities throughout the world; we are only as safe from health threats as the most vulnerable individuals and communities. In recognition of this fact, the United States Centers for Disease Control and Prevention has stationed scientists and health experts in countries across the globe, including China. CDC professionals complement the efforts of other U.S. government agencies and partners by collaborating with host nation health authorities to deliver life-saving science, groundbreaking medical research, cutting-edge innovation, and proven long-term health investments that translate into healthier communities, more productive economies, and more stable societies.

The U.S. CDC in China works closely with our host country counterparts on key areas of mutual interest and benefit.

Ensuring a healthier society in China while reducing global disease burden

U.S. CDC in China continues to strengthen our traditional areas of collaboration in emerging and re-emerging infectious disease, vaccine-preventable diseases and HIV/AIDS. Major advancements have been made in influenza surveillance, food-borne salmonella surveillance, measles control and the identification and treatment of HIV infected individuals as well as reducing mother-to-child transmission.

Disease knows no borders

In today's world people, animals, food, raw materials, manufactured goods, and even practices and fashions move across the globe faster than at any time in history. An outbreak of infectious disease, a contaminated food or a dangerous practice can spread across countries, continents and the globe at unprecedented speed. The U.S. and China have been collaborating for more than two decades to create the expertise, information, and tools that people and communities need to protect their health through disease surveillance, health promotion, prevention of disease, injury and disability, and preparedness for new health threats. This work is not only helping keep Chinese citizens safe but is also protecting Americans against the spread of disease to the U.S.

AT HOME FOR MORE THAN 30 YEARS

Building on-the-ground-capability to detect deadly disease

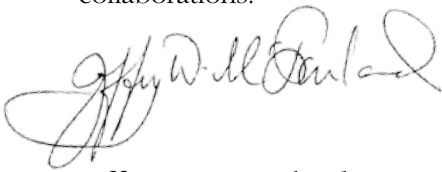
Key to our efforts is transferring the culture and practice of public health to our Chinese collaborators. We do this directly through the Chinese Field Epidemiology Training Program and through both long- and short-term fellowship programs that allow Chinese scientists to live and work in the U.S., as well as indirectly throughout our daily interactions with our Chinese collaborators.

Non-communicable diseases represent an urgent and growing global public health emergency

U.S. CDC's collaborative work in China has expanded in breadth and depth during these last two years. Due in large part to the success of immunizations and better control of infectious disease, China has significantly reduced mortality among children less than five years old. As a result, approximately 80% of deaths are now caused by non-communicable diseases (NCD). U.S. CDC has assigned a medical epidemiologist to lead a new and exciting collaboration on NCDs, with an initial focus on reducing hypertension, stroke and smoking. These efforts will assist China in curbing these growing problems, and potentially offer valuable lessons on the prevention and control of these conditions in the U.S.

On behalf of the U.S. CDC in China, we remain committed to providing high level, expert assistance on these shared health priorities. Much advancement has taken place as a result of our long standing collaboration with the Government of China. This report highlights just a few of the many accomplishments from 2010-2011.

It is important to acknowledge that these achievements are the result of collaborative work carried out by many dedicated health professionals from both China and the U.S. I thank all of them for their efforts to date and look forward to our future collaborations.



Jeffrey W. McFarland, MD

Director, U.S. Centers for Disease Control and Prevention, China Programs

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Rural AIDS Training Centers set a model for the future

In China, an estimated 780,000 people are living with HIV and approximately 200,000 people are in need of antiretroviral treatment. In 2003, the Chinese government pledged to provide free antiretroviral treatment to all rural AIDS patients under the “Four Frees and One Care” policy. The health system immediately saw an increased demand for antiretroviral services, particularly in rural areas.

The U.S. CDC in China established two rural AIDS clinical training centers to improve capacity to care for HIV and AIDS patients in remote areas of the country. The Lixin, Anhui training center was opened in 2004, in collaboration with the Clinton Foundation, in a rural county heavily affected by unsafe plasma donation practices of the early 1990’s. The Luzhai, Guangxi training center was opened in March 2010 and is located in an area where HIV is primarily spread through sexual transmission and injecting drug use.

The training centers provide 10-week intensive residency training on comprehensive HIV care and treatment practices by using a residential community-based approach. Trainees are county-level infectious disease clinicians from across China with at least 3 years of experience treating HIV/AIDS patients. They provide direct care and treatment services in the high epidemic counties in the province, providing county-level doctors with rare hands-on experience that they can then apply in their home provinces.

“Through this training... I have gained understanding of the importance of antiretroviral treatment, the key role of adherence, and importance of comprehensive management of patients. All of these capacities I have gained from the training have become the cornerstone of my work after graduation. Now I have become one of the experts (in my region),” reflects Li Chuanjie, Director of Department of Infectious Disease, Lixin People’s Hospital and 2004 graduate of Lixin training center.

As of September 2011, a total of 133 graduates have completed the intensive mini-residency training program. These graduates are now treating more than 16,000 AIDS patients in 16 provinces. Over 80% of the graduates continue to work in HIV/AIDS care and treatment. Using a cascade training approach, graduates have provided extended training to more than 2,871 health workers in their counties.

In 2011, the Lixin Center was successfully transferred to the Anhui Province local government, while U.S. CDC continues to provide nominal support for trainers and outreach activities in Lixin. The training centers have substantially increased the workforce for AIDS treatment and care in rural and often ethnic minority areas of China and stand as model programs that meet a true need and can successfully be adopted by a host region.



The *Dispatch* puts scientific evidence in the hands of policy makers

Since 2001, the Chinese Field Epidemiology Training Program (CFETP) has built China's disease surveillance and response capabilities by conducting on-the-job training of field epidemiologists. In 2010, the program addressed an existing gap between the program's growing evidence base from field investigations and public health policy change by launching a Chinese version of U.S. CDC's *Morbidity and Mortality Weekly Report*, titled the *Dispatch*.

The *Dispatch* is a twice-monthly publication distributed to China's Ministry of Health, the China CDC, provincial and sub-provincial CDCs, and CFETP officers and graduates. This report enables timely scientific findings to reach public health decision makers. After approximately 31 editions and a growing audience of more than 250 public health leaders, the evidence behind needed policy changes is coming to light. No other Chinese publication releases information as quickly.

For example, in late 2009 while the nation was fighting H1N1, CFETP found itself investigating an outbreak in Shenyang, one of China's largest cities. Shenyang residents were being hospitalized with critical complications that included pneumonia, respiratory failure, and failure of vital organs. The outbreak was investigated to determine possible risk factors for the development of life-threatening results, with a particular interest in how steroid use affected the onset of critical conditions.

Steroid use can quickly suppress fever but can also increase the risk of developing more severe disease from infections. Despite this, a recent survey showed that approximately 30% of Chinese rural practitioners routinely prescribe the steroid dexamethasone to treat simple fever. The investigative team in Shenyang City found that using steroids within three days of the onset of illness tripled the possibility of patients developing critical disease.

Based on these findings, the investigators recommended that guidelines on the use of steroids (specifically glucocorticoids) be established and enforced. In response to the *Dispatch* and other recent studies conducted by the CFETP, the Ministry of Health examined the evidence and issued new Guidelines on the Clinical Use of Glucocorticoids, which warned against the abuse of glucocorticoids for fever treatment.

"The recommendation from this study has the potential to prevent thousands of infectious disease related deaths all over China," observed Dr. Robert Fontaine, Senior Resident Advisor, CFETP.

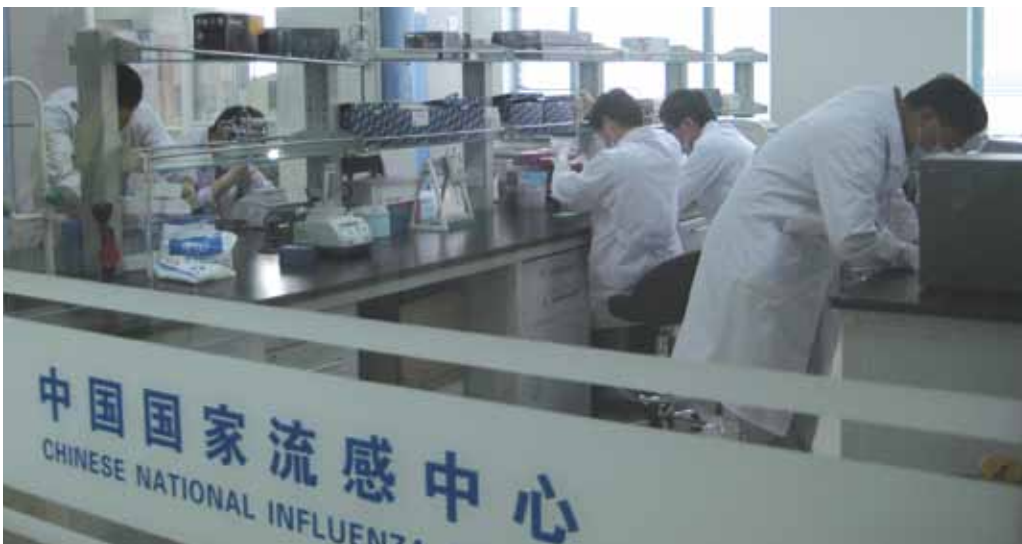
China a Key Partner in Global Influenza Surveillance

Thanks in large part to a mutually beneficial collaboration with U.S. CDC, China's National Influenza Center (CNIC) in Beijing was designated by the World Health Organization (WHO) as the fifth WHO Collaborating Center for Reference and Research on Influenza in humans in October 2010. China now joins Australia, Japan, United Kingdom, and the United States in playing a pivotal role in global influenza surveillance. This new designation benefits China as well as the health of the world's population in immediate ways.

China is responsible for influenza surveillance in 1.3 billion people. Now that they are equipped with their own Collaborating Center, the global health community is in a much better position to detect and prepare for emerging influenza viruses in China before they circulate widely in the human population," says Dr. Nancy Cox, Director of the Influenza Division at U.S. CDC.

The Chinese National Influenza Surveillance Network grew steadily with support from U.S. CDC. U.S. CDC has provided direct technical and financial support to China for epidemiologic studies, surveillance improvements, drug resistance and research to inform vaccine-related decisions. U.S. CDC will continue to provide support and guidance to its fellow influenza experts at the new Collaborating Center as they begin to train researchers in specialized techniques, collect epidemiological information on influenza disease prevalence in China and surrounding countries, and assist in developing pandemic preparedness plans. Their responsibilities also include studying representative vaccine viruses sent from laboratories around the world, then sharing that information with other researchers.

"The intensive evolution and uncertainty of influenza viruses produce a formidable and long-term task in prevention and control," says Dr. Shu Yuelong, Director of the CNIC. "It is not just the mission for a single country or organization. The new Collaborating Center will benefit not only China and the United States, but also the global community."





Responding to China's emergencies before, during and after they occur

As a part of U.S. CDC's Global Disease Detection efforts, risk communication experts set out to prove the power of mobile phone text messaging for sharing vital public health information in the context of emergencies. Based on the idea that outbreak control improves when the word spreads faster than the disease, U.S. CDC in China worked with the Chinese national public health hotline and Ministry of Health to send text-messages to thousands of mobile phone users with timely health advice.

In the first pilot test conducted in Shanghai, China's largest city, H1N1 influenza messages were sent to mobile phone. Individuals receiving H1N1 information via text gained knowledge and changed attitudes about influenza prevention and control. Encouraged by the Shanghai results, the Ministry established a policy which assigned a permanent health text messaging code in all 31 provinces for emergency messaging as well as routine public health education and promotion. With 1.3 billion people, 1.13 billion mobile phone users and 46 cities of 2-million or more, China needs new ways to get essential public health guidance out, and part of the answer may turn out to be a text in time.



"This collaboration and research study with U.S. CDC helped the national hotline prove that SMS text messaging is an effective way to send health information to China's public. This will help lead to a longer term plan to have regular text messaging from the Ministry of Health to the people of China," stated Tan Feng, Director of 12320 National Hotline.

U.S. CDC also worked alongside Shanghai CDC to prepare for the World Expo 2010 and the Guangdong CDC in its preparation for the 16th Asia Games 2010. In Shanghai, U.S. CDC carried out a risk assessment, conducted emergency preparedness training, and developed an emergency action plan that contributed to the public health security and safety of approximately 70 million people that visited the World Expo.

Tackling the highest burden diseases in China

China faces a remarkably severe threat from non-communicable diseases (NCDs). An estimated 82% of China's disease burden is due to NCDs—a number that is expected to grow over time. Stroke takes an especially heavy toll among Chinese due largely to hypertension which is associated with high dietary salt (sodium) intake.

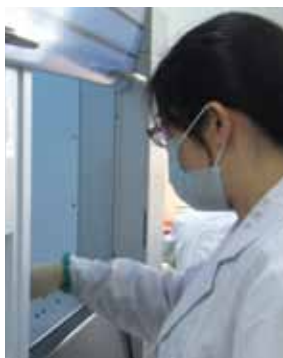
According to the Global Adult Tobacco Survey conducted by China CDC in collaboration with U.S. CDC, WHO, and the Bloomberg Global Tobacco Control Initiative, among adults older than 15 52.9% of men – or 288 million men -- are current smokers contrasted to only 2.4% of women – or 13 million women. Based on these data, U.S. CDC has focused initial NCD projects in China on sodium reduction and tobacco use.

“The country's public health focus has been mostly on communicable diseases to date, and rightly so, but what's happening in China is that the population is aging and NCDs are becoming more common,” says Dr. Michael Engelgau, Senior Scientific Advisor for NCDs in China. “People don't have the information to prevent diseases, maybe don't understand the harm that tobacco brings, and their need for chronic care can over stretch the primary care system and their household budgets.”

In 2009, China requested U.S. CDC's help to address NCDs. U.S. CDC retooled its signature Field Epidemiology Training Program (FETP) in China to include a NCD track to train officers within the country's National Center for Chronic and Non-communicable Disease Control and Prevention. The CFETP officers studied a provincial salt reduction program and tobacco control adherence in public places in Beijing. In the spring of 2011, U.S. CDC co-hosted China's first Symposium on Salt Reduction, bringing together a global group of experts to highlight its importance in public health policy. In addition, U.S. CDC is collaborating with the U.S. National Institutes of Health, National Heart Lung and Blood Institute and the George Institute (China) on the China Rural Health Initiative to lower heart disease and stroke risk in rural Chinese populations.

“China CDC is fully committed to NCD efforts,” says Engelgau. “We are confident that together we can address the emerging public health threat of NCDs.” Mitigating on the job exposure – Tuberculosis among China's healthcare workers





Currently, nearly one third of the world's population is infected with tuberculosis (TB), and over 9 million people develop active disease every year. The emergence of multidrug resistant and extensively-drug resistant strains threatens our ability to control TB globally. U.S. CDC and China CDC experts are working to address resurgence of diseases such as TB through the Global Disease Detection (GDD), by strengthening public health surveillance and improving laboratory capacity to detect and respond to infectious diseases.

China has the second-highest reported burden of TB in the world. This high rate is of particular concern because of China's large and dense population. Among TB cases reported in China, healthcare workers are one of the most commonly affected occupations, due to their close contact with patients. Strong respiratory infection control measures can decrease transmission of TB, but are difficult to implement in healthcare facilities because they require changes in patient workflow, additional resources, strict monitoring, and commitment from hospital directors and all supervisory staff to fix unsafe practices and reward good practices.

In order to evaluate the risk of transmission in healthcare facilities, the National Center for Tuberculosis (NCTB) in China and U.S. CDC collaborated to measure baseline rates of TB infection and disease in 1000 healthcare workers from 2 healthcare facilities in Inner Mongolia. Inner Mongolia is a province in northern China with a high incidence of active TB (160 per 100,000 per year) and multi-drug resistant TB (MDR-TB) (8% of previously untreated cases). Among healthcare workers tested for latent TB infection (LTBI), 68% were positive. This is the highest prevalence of LTBI ever documented in a survey of healthcare workers, including similar surveys conducted in high TB burden countries such as India.

"Similar to all countries in the world, China needs to make sure that its hospitals have policies and procedures to reduce TB transmission in the hospital," according to Jay Varma, former Director of IEIP/GDD in China. "This is important for protecting the health of workers and also patients. We have evidence from around the world about how to do this, but we also know from the U.S. and other countries that the most difficult task is convincing doctors, nurses, and everyone else in the hospital to change the way they have been doing things."

The U.S. CDC works in China under the umbrella of the President's Emergency Plan for AIDS Relief (PEPFAR), although U.S. CDC's work on HIV/AIDS in China predates PEPFAR by three years. PEPFAR's work in China has evolved since its inception in 2006, moving from direct assistance in the early years to the current focus on model development and technical assistance. Over time U.S. CDC's work will focus more specifically on a model of technical collaboration that includes U.S.-China joint support for activities in the Asian region and beyond.

This evolution is consistent with the government of China's response to HIV/AIDS, for which it currently provides more than 90% of the funding. However, China's technical capacity to provide effective policy oversight and high-quality program implementation has not fully kept pace with its increasing economic capacity. Therefore, U.S. CDC's impact is much larger than its modest financial contribution. U.S. CDC's work influences and supports a strategic approach driven by data, and strengthens China's ability to manage its national HIV/AIDS response in a sustainable way.

U.S. CDC's activities are fully integrated into the national response, and as such, are focused on a shared vision developed collaboratively with our Chinese counterparts: to reduce HIV transmission and mitigate the impact of AIDS with the goal of keeping the number of people living with HIV/AIDS below 1.2 million by 2015. This is a challenging goal. China's epidemic is rapidly evolving and calls for a dramatic expansion of health care services. However, the epidemic also remains relatively concentrated in a number of specific geographic regions and high-risk populations—meaning that intensive and targeted prevention efforts can have a major impact.

U.S. CDC's work has already demonstrated impact—from documenting the course of the epidemic and identifying emerging high-risk populations to introducing innovative new laboratory approaches that improve both testing and care to promoting a comprehensive approach for the prevention of maternal to child transmission.

U.S. CDC will continue to provide support both to the national government and 15 provinces, with a focus on specific populations and geographic areas in which the epidemic continues to expand rapidly. Emphasis will be placed on:

- organizational and leadership development as well as training for rural health care providers, who currently are providing care for most people living with HIV/AIDS in China
- efforts to strengthen the laboratory system
- support for rapid testing for HIV, introduction of point-of-care technologies for severity of disease, and surveillance for recent infections
- jointly documenting and disseminating information on the nature of China's HIV/AIDS epidemic and using that data to inform policy
- operational research to reduce HIV infections through harm reduction approaches for injecting drug users and prevention of maternal-to-child transmission for pregnant women co-infected with HIV and Hepatitis B virus

Providing valuable knowledge in the fight against HIV/AIDS in China





From pilot program to national scale up - successful model for prevention of mother to child transmission of HIV

U.S. CDC improved the accessibility of the prevention of mother-to-child transmission in rural areas in Guangxi where there was relatively high HIV prevalence yet low HIV testing coverage through a pilot testing project. Of 233,017 pregnant women in the 112 clinics, 88% of the pregnant women seeking prenatal care were tested and 455 were found to be HIV-infected. 87% received antiretroviral prophylaxis during pregnancy and/or labor, 93% of viable infants received antiretroviral prophylaxis and replacement feeding, and only 5% tested HIV positive after 18 months. Links between prenatal care clinics and HIV/AIDS care and treatment services in Guangxi province were strengthened. This model of success is now being replicated in 1,156 counties in China.

Improving access to HIV testing through promotion of rapid tests and provider-initiated testing and counseling

To support China's efforts to intensify HIV detection and counseling, U.S. CDC promoted provider-initiated testing and counseling and improved the quality of voluntary counseling and testing. U.S.CDC also supported the writing of China's Guidelines for HIV Rapid Testing, including the use of simple oral fluid-based testing. These guidelines allowed non-governmental organizations and community-based organizations to conduct rapid testing, increasing persons' ability to learn their HIV status.

Collaborative study- dramatic rise in HIV prevalence among men who have sex with men (MSM)

U.S. CDC supported the completion of 3 surveys of HIV and syphilis among men who have sex with men (MSM) from 2009-2011 in 61 cities nationwide. Data revealed a rapid rise of HIV infection in MSM with an average national of 5% (compared to <2% in limited surveys prior to 2006). A higher prevalence (10-20%) was registered in Chengdu, Chongqing, Guiyang and Kunming in Southwestern China. This study provided the government data which allowed them to establish national priorities and strategies for HIV prevention in MSM.

China's first national HIV/AIDS Surveillance Report

U.S CDC supported China CDC in the joint development of a comprehensive national HIV/AIDS surveillance report for the period 2008-2010. The report uses new statistical methods and was disseminated bilingually in Chinese and English. The document offers important data that will assist international researchers and policy makers in better understanding and responding to the HIV/AIDS epidemic in China.

GLOBAL DISEASE DETECTION

The Global Disease Detection (GDD) program is U.S. CDC's most visible program for developing and strengthening the ability to identify and respond to emerging infections around the world. The U.S. GDD Program in China, serves as one of ten regional GDD centers. GDD's main role in China is to provide assistance to the Chinese Government in outbreak response, pathogen discovery, surveillance, training, and networking.

Due to the overwhelming success of the cooperation, the U.S. Department of Health and Human Services (HHS) Secretary Sebelius and China Minister of Health (MOH) Chen Zhu signed a new Memorandum of Understanding to extend the collaboration on the prevention, detection, response and control of infectious diseases through 2015.

In order to protect China, the U.S., and the world, U.S. CDC helps build capacity to detect and respond to emerging and re-emerging infectious disease by connecting complementary programs and resources. This comprehensive approach helps China identify and contain infectious disease outbreaks before they spread globally. Programs include:

- Emerging Infections
- Field Epidemiology Training Program (FETP)
- Influenza
- Laboratory Systems Strengthening
- Risk Communication and Emergency Response

In the coming years, the collaboration will continue to focus on strengthening coordination between clinical and public health laboratories and epidemiologists while expanding the program to provinces. Training and fellowship activities will also continue to be a high priority, with the overall goal of increasing the use of data-based and evidence-based decision making for public health.

The world gains greater insight into the global threat of influenza

Over the past two years U.S. CDC's cooperation in influenza has made great strides in increasing influenza surveillance among one-fifth of the world population. Through support from U.S. CDC, China's influenza surveillance network increased its sentinel hospitals three-fold from 197 to 556, increased the number of laboratories from 63 to 411, and instituted a laboratory quality management program. U.S. CDC has also supported virology and drug resistance surveillance, Severe Acute Respiratory Infection (SARI) surveillance, population-based pneumonia research and occupational exposure research among healthcare workers. China's reaction to the 2009 influenza pandemic demonstrated great improvement in rapid response to prevent, identify, and control influenza. Due in large part to U.S. CDC's work, influenza data from China is now available online through an Influenza Weekly Report written in both English and Chinese. This information is regularly used by the WHO in determining potential threats within the world's most populous country.

Early disease detection, treatment, and prevention in China helps protect people everywhere





Identifying sources of foodborne outbreaks in China and the U.S. through China's PulseNet system

Food that is consumed in the U.S. is often the product from multiple ingredients, increasingly imported from overseas. The most reliable and efficient mechanism for ensuring microbiologically safe food entering the U.S. food chain is to support the development of parallel food safety and quality assurance systems such as PulseNet USA in partner countries. The U.S. CDC has provided technical support and training to help develop PulseNet China, working with over 500 laboratorians and epidemiologists at the national and provincial CDC level. This system, created in partnership between the U.S. and China CDCs, has assisted PulseNet USA in searching for the microbiological origin of several foodborne outbreaks in the U.S.

China Field Epidemiology Training Program (CFETP) discovers the hidden life-threatening causes behind a typically mild disease

Since 2008, Hand Foot and Mouth disease (HFMD) from enterovirus 71 has caused hundreds of deaths in infants and toddlers throughout China. Normally a mild disease, the disease has resulted in life-threatening complications. The CFETP identified treatment of fever and mild illness with glucocorticoids (steroid hormones used to suppress immunity and reduce inflammation), a common practice in China, as contributing to a large proportion of the severe critical and fatal infections. CFETP also demonstrated that this practice was contributing to excess deaths and critical disease from influenza. CFETP has helped translate these findings into policy. CFETP has studied communities and kindergartens to show a very strong preventive effect from good hand-washing practices. These studies are leading to better control of the transmission of HFMD.

China field epidemiologists grow in numbers, locations and knowledge

The Chinese Field Epidemiology Training Program (CFETP) launched an expansion plan to increase class size to 80 per year by 2015. In the initial year of this plan class size was increased from 15 to 32. China CDC supported the expansion plan of the CFETP by providing 3 new staff positions and new training and office facilities. To put new trainees close to the action, field sites (provinces and large cities) have been increased to 19 and important programs such as chronic disease control and prevention, childhood vaccination, and emergency response have been increased. Focusing on the complex interplay between human health, the health of animals, and the environment, the CFETP collaborated with the United Nations' Food and Agriculture Organization and the China Ministry of Agriculture to establish a new veterinary FETP for China. This included a joint rabies investigation in Chongqing, assistance with training, and participation in the national conference.

Responding with communications where public health emergencies happen

This initiative represents a significant shift in thinking about the role of communications in emergency response in China—an important result of U.S. CDC's risk communications capacity building in China. The goal of this program is to train health communications and public information officers to be deployed side-by-side with public health officials and first-responders in an emergency to address communication needs rapidly, transparently and effectively with the public and media during a public health emergency.

By emphasizing the need for open and transparent communication in the context of a public health emergency, the Ministry of Health is moving closer to the World Health Organization standards and enhancing its compliance with the International Health Regulations.

Emergency preparedness and response in China reveals globally applicable lessons learned for natural disasters

U.S. CDC in collaboration with China CDC's emergency response office investigated the response and outcomes of China's recent natural disasters. These investigations have provided unique information to improve safety and response measures during natural disasters in China and the world. An investigation into the April 14, 2010 earthquake response in Yushu, Qinghai province provided new insight on the effects of acute high altitude disease among responders. Research into the risk factors for injuries following typhoons was conducted in Zhejiang province located on China's east coast and prone to several typhoons every year. Other activities focused on long term psychological effects among emergency responders deployed to the Sichuan earthquake of May 2008.



NON-COMMUNICABLE DISEASES

As in the U.S., non-communicable diseases (NCDs), particularly heart disease and stroke, cancer, diabetes, and chronic respiratory diseases, are now leading killers in China where they account for 80% of all deaths. Fortunately, global knowledge and strategies are available such that, when applied, they can substantially reduce the burden of NCDs. Recognizing this, NCDs are important health concerns for both China CDC, which has requested the development of more integral collaborations in this area, and the U.S. CDC, which has made NCD prevention and control efforts a top priority for its work in China.

Building upon the earlier efforts of U.S. CDC staff in country, the current Senior Advisor for non-communicable diseases (NCD) arrived in Beijing in 2011, and quickly began providing scientific guidance to China CDC and other Chinese public health organizations on key evidence-based strategies and programs to reduce the burden of NCDs in China. These include salt reduction and hypertension control; reduction of tobacco use; behavioral risk factor surveillance; and injury prevention and control.

The advisor is also strengthening in country capacity by developing and implementing a specialized track on NCDs within the China Field Epidemiology Training Program (CFETP). The program began with 3 trainees in the first year, and added 4 in 2011. In addition, two short courses (3-4 days) on NCDs were conducted, helping to transfer knowledge and skills to 110 epidemiologists and public health staff from national and provincial levels, in the areas of risk factor surveillance, evaluation, survey sampling, and translating science to policy.

China releases Global Adult Tobacco Survey data and key report

China released data from its Global Adult Tobacco Survey, which highlights that 301 million Chinese are currently smokers and more than 70% of nonsmoking adults are exposed to secondhand smoke. This work is supported by the Bloomberg Philanthropies and a partnership among WHO, U.S. CDC, the Chinese Ministry of Health and China CDC. U.S. CDC also supported the China Ministry of Health in developing the first national report on the harms of tobacco smoke in China, further helping to curb this growing problem.

China-U.S. collaboration on the Behavior Risk Factor Surveillance System

Experts from the U.S. CDC worked with China CDC collaborators on the Chinese Behavior Risk Factor Surveillance System (BRFSS) for non-communicable diseases. U.S. CDC staff introduced in detail the U.S. BRFSS history, design, work flow, organization, data collection and analysis procedures, and utilization of BRFSS data by policy makers. The China CDC staff introduced the history of China BRFSS and implementation plans for the nationwide survey conducted in 2010. U.S. staff provided critical consultation on the China BRFSS sampling plan, questionnaire design, data collection and quality control procedures, and other operational

Controlling non-communicable diseases in China a shared priority



details. U.S. CDC staff from Beijing and Atlanta also accompanied staff from the China CDC to Hangzhou and Tongxiang City, Zhejiang Province to observe data collection for the China Chronic Disease Survey. This survey will provide critical new information about the prevalence of chronic diseases and their risk factors in China. The last such survey was conducted in 2007.



Symposium on sodium reduction for better health

U.S. CDC and China CDC co-sponsored a symposium on sodium reduction which brought together scientists and professionals from across China. Public health, clinical medicine and academic sectors were represented, as well as non-governmental organizations and the salt industry, food manufacturers, processors and retailers. Invited international guests presenting best practices included representatives from WHO, Japan, Finland, Australia and India. This symposium led to the formation of the China Network for Sodium Reduction. The inaugural meeting was held in September 2011.

Healthy Shandong agreement signed

The agreement, signed by Minister of Health, Chen Zhu and Shandong Governor, Jiang Daming, will support multi-sectoral collaborations on health. A second agreement, focusing on an effort to reduce salt use, sodium exposure, high blood pressure and stroke, was also signed by Vice-Minister of Health, Yin Li and one of Shandong's Vice-Governors. U.S. CDC, in collaboration with China CDC, will provide technical assistance on the implementation of the sodium initiative. This represents the first provincial-level initiative to reduce sodium exposure to promote health in China.

Preventing birth defects and childhood cancers worldwide through collaborative research in China

The Chinese Children and Families Cohort Study, a collaboration among the U.S. CDC, U.S. National Institutes of Health, and China CDC, aims to follow mothers and their children who participated in a community intervention program (1993-1996) on the use of folic acid to prevent neural tube birth defects. This collaborative study contributed strong evidence that folic acid alone without other vitamins could prevent neural tube defects. U.S. CDC's National Center on Birth Defects and Developmental Disabilities and the U.S. National Cancer Institute continue this ongoing, long term collaboration with China to follow-up the mothers and their children enrolled in 1993, focusing on children with major external birth defects and testing specific hypotheses on the potential long-term effects of folic acid exposure prior to conception and in the early stages of pregnancy in altering the risk of pediatric cancers or chronic diseases in adults. A pilot study supported primarily by the National Cancer Institute is underway, and larger feasibility studies are being planned.

VACCINE PREVENTABLE DISEASES

Since 1992, U.S. CDC has seconded a medical epidemiologist to the WHO office in China. Working through WHO, the U.S. CDC secondee has provided technical assistance on all aspects of immunization work directly to the China Ministry of Health, National Immunization Program and also the China CDC. Working within the WHO has benefited work in areas of vaccination policy development, while working alongside the China CDC has created opportunity collaborative work on technical issues.

The primary focus of the collaborative work has changed over time, with an initial strong emphasis on polio eradication, basic strengthening of routine childhood vaccination and data management in the early years, to a now far more sophisticated and complicated array of issues pertaining to a more mature vaccination program including a strong research component. The secondee serves as a strong mentor, working side-by-side national staff on a daily basis.

In the coming years, U.S. CDC will continue strengthening support for all aspects of immunization work together with China CDC and WHO with special emphasis in the next year for measles elimination goals.

U.S. CDC assists China with the largest measles immunization campaign ever conducted

U.S. CDC through the WHO China office supported the Ministry of Health to conduct a nationwide measles vaccination campaign targeting more than 100 million children. This is the largest measles campaign ever conducted to date, and led to a 75% decrease in reported measles cases.

New scientific findings about meningitis and encephalitis

Epidemiologists from U.S. CDC through the WHO China office collaborated with China CDC to conduct surveillance for acute meningitis and encephalitis at sentinel sites around China. This project succeeded not only in collecting critical information about these diseases but also in strengthening lab capacity to conduct surveillance for bacterial pathogens.

Helping China build scientific capacity for vaccine preventable diseases



Identifying congenital rubella saves lives and bridges clinical and public health in China

The WHO/China office collaborated with U.S. CDC and China CDC to conduct sentinel site surveillance for congenital rubella syndrome (CRS). The lessons learned from this project will be used to expand rubella and CRS surveillance nationally. Since China has introduced rubella vaccine into their routine EPI program, rubella and CRS surveillance will be used to monitor the impact of the vaccination program. In 2011, the CRS surveillance started to document the burden of CRS in China. Not only have these projects detected CRS, they have also built capacity in conducting complex surveillance linking clinical medicine to public health.

A swift and effective response helps contain an outbreak of polio

In 2011, the WHO China office collaborated with the WHO headquarters and regional offices and the U.S. CDC to support the Ministry of Health and China CDC response to the first wild type polio outbreak in China since 1999. China had been declared polio-free in 2000, and maintained polio-free status using routine immunization, high-quality surveillance for acute flaccid paralysis, and supplemental immunization activities with trivalent oral poliovirus vaccine. An outbreak of wild polio type 1 was detected in August 2011, in Xinjiang Uygur Autonomous Province, and was determined caused by a poliovirus imported from Pakistan. The outbreak ultimately paralyzed 21 individuals. China's response to the outbreak was immediate, well-coordinated, effective, and massive-mobilizing tens of thousands of people in 5 rounds of supplemental poliovirus immunization activities. Surveillance in 2011 showed that transmission was stopped by the outbreak response. The Regional Commission for the Certification of Poliomyelitis in the Western Pacific will convene in November 2012 to determine whether China maintains its status as polio free.



Addressing anti-vaccine concerns in China with improved communication

The WHO China office along with U.S. CDC supported the Ministry of Health in addressing anti-vaccine movements within China. Activities included offering training workshops on media communication, conducting press interviews, and arranging for a three-week training in the fall, with the U.S. CDC headquarters immunization communication staff. During this training, communications specialists from the Chinese immunization program will learn how U.S. communication specialists respond to anti-vaccine sentiment in the United States and how to effectively communicate with the public during crises. The training will help lay the groundwork for a continuous tracking system for the national immunization program on parental attitudes towards vaccines.

CROSS-CUTTING ACHIEVEMENTS

Partnering with the private sector provides unique opportunities for China's public health system

U.S. CDC presence in China has helped to facilitate opportunities for Public-Private Partnerships, which have translated into successes for China's public health system.

- Cisco Systems - Following the 2008 Wenchuan earthquake, U.S. CDC helped conduct a health information needs assessment that showed villagers' need for regular basic health information. Following the extreme devastation, Cisco systems implemented a telemedicine system that connected Wenchuan county with hospitals and public health facilities across China. U.S. CDC partnered with Cisco to deliver health education via distance based training to rural health volunteers.
- Pfizer – In 2011, U.S. CDC partnered with Pfizer's Global Health Fellows Program to bring a highly qualified Pfizer statistics expert, Dr. Mark Li, to China, where he collaborated with U.S. CDC staff and Chinese partners to analyze respiratory disease data in Jingzhou, China.
- Alere – U.S. CDC collaborated with Alere, a Boston-based global company in medical device manufacturing and disease detection, to test the utility of hand held devices in measuring the severity of disease in HIV-infected patients in rural areas. Alere donated all materials for 3 test sites. (Currently there are 2 sites). A successful use of point-of-care CD4 tests in hard to reach populations will greatly reduce wait time between diagnosis and initiation of antiretroviral treatment and thus reduce mortality.
- Cellestis – In 2010, the U.S. CDC partnered with Cellestis, a manufacturer of blood tests to detect latent tuberculosis (TB) infection, on a project assessing TB infection among healthcare workers in Inner Mongolia, China. Cellestis donated the laboratory testing equipment and enough test kits to assess infection among 1,000 healthcare workers. This test is more accurate in assessing latent TB infection than the current Chinese methodology of using a tuberculin skin test. The study was able to show that 69% of the tested healthcare workers were infected at some point in their lives. This will be the highest prevalence rate of infection among healthcare workers reported in the literature.





Chinese citizens receive vital information on China's top public threats from leading experts from the U.S. and China

U.S. CDC and U.S. Embassy in Beijing's Press Office organized a series of one-hour web chats focusing on key public health issues in China. Each web chat featured a U.S. CDC expert and a counterpart in China CDC or the Chinese medical system. The cooperation partnered with Ifeng.com, the online branch of Phoenix TV, one of the largest private news portals in China which reaches a potential audience of millions.

Topic	Viewership	Broadcast Date
Rabies	2,558,694	World Rabies Day September 28, 2010
Influenza	2,099,152	October 26, 2010
Measles campaign in China	1,294,768	November 12, 2010
Pneumonia	1,806,785	World Pneumonia Day November 12, 2010
HIV/AIDS	1,456,921	World AIDS Day December 1, 2010
Super bug	1,037,557	December 6, 2010
Foodborne disease	1,184,758	December 13, 2010
Non-communicable disease	1,583,266	January 7, 2011
Health economics	483,157	July 6, 2011
Heart health	513,009	September 29, 2011

Viewership of "Health View" web chats as of November 1, 2011

Seeing is believing: Chinese public health professionals work at U.S. CDC headquarters and implement lessons learned in China's Ministry of Health (MOH) and China CDC

In 2009 U.S. CDC began offering select fellowships to some of China's top public health professionals. These experts worked within U.S. CDC headquarters rotating through key divisions and public health response teams. Fellowships lasted six weeks to one year and focused on influenza, emergency response, emergency risk communications, and national public health hotline operations and immunization science. Lessons that could only be learned by observation and experience were shared and implemented in the Chinese public health system with the hope that, over time, the changes could help shift policies in ways that augment traditional technical assistance projects. By October 2011 U.S. CDC headquarters had hosted approximately 46 months of long-term senior staff fellowship programs.

Public health advocacy in the U.S. Embassy Beijing

U.S. CDC in China works within the U.S. Embassy mission. In so doing, the embassy mission often requests U.S. CDC's involvement in outreach activities that affect the embassy community including its approximately 600 local employees and 500 U.S. direct hires and their 500 family members. U.S. CDC staff members have been involved in health day celebrations by offering expert lectures on World AIDS Day, World Health Day and World Heart Day. The U.S. CDC staff also helped support breast cancer awareness activities and launched a healthy weight loss program for the community.



U.S. CDC KEY STAFF

Country Director

Jeffrey W. McFarland

Deputy Country Director

Alison Kelly

Division of Global HIV/AIDS (DGHA)

Marc Bulterys, Director

Chin-Yih Ou, Deputy Director for Laboratory Sciences

Global Disease Detection (GDD)

Jeffrey W. McFarland, GDD Coordinator

International Emerging Infections Program (IEIP)

Dale Hu, Director

Patrick Flaherty, Deputy Director for Operations

John Klana, Laboratory Section Chief

Carol Rao, Epidemiology Section Chief

Influenza Division (ID)

Jeffrey W. McFarland, Influenza Coordinator

Risk Communication and Emergency Preparedness

Melinda Frost, Director

Chinese Field Epidemiology Training Program (CFETP)

Robert Fontaine, Senior Advisor

Non-communicable Diseases

Michael Engelgau, Senior Advisor

World Health Organization, Global Immunization Division (WHO/GID)

Lance Rodewald, Resident Advisor

U.S. CDC CHINA STAFF AWARDS

Bao-Ping Zhu – Award of Merit for his excellence and dedication to the development of the Chinese Field Epidemiology Training Program. This award marks the continuing strengthening of U.S.-China collaboration, U.S. CDC, Atlanta, GA, USA – 2011

Bao-Ping Zhu – Award of Merit for Outstanding Work in Developing Field Epidemiology in China, Chinese Center for Disease Control and Prevention – 2011.

Liang YanJun – Individual Meritorious Honor Award for her contribution to IEIP works in China, U.S. Embassy, Beijing, China – June 2011

Wang Zheng – 9 Years Safe Driving Award, U.S. Embassy, Beijing, China – June 2011

Li Bing – 6 Years Safe Driving Award, U.S. Embassy, Beijing, China – June 2011

Li ManJing – 3 Years Safe Driving Award, U.S. Embassy, Beijing, China – June 2011

Guo Shun – 2 Years Safe Driving Award, U.S. Embassy, Beijing, China – June 2011

Ann Chao, Deng GuangHua, Gao Xin, Guo Shun, Li Bing, Li ManJing, Mao Jie, Wang Lijun, Wang Zheng, Xing Wei, Yang Guang, Yang Shuo, and Yuan XiaoDong – Group Franklin Award for their support of the 1st Symposium on Salt Reduction and Health in China, U.S. Embassy, Beijing, China – June 2011

Marc Bulterys, Han LiFeng, Hao Ling, Li ZhiJun, Lin Wen, Chin-Yih Ou, Qi MingShan, Wang LiMing, Wei XiaoYu, Wen XiaoNing, Zhang Juanjuan (Julia), and Zhang NanNan – Group Meritorious Honor Award for their outstanding works for HIV/AIDS Program in China, U.S. Embassy, Beijing, China – June 2011

Li Richun – Individual Meritorious Honor Award for Health Communications Work, U.S. Embassy, Beijing, China – December 2010

Steve Luby – IEIP, Bangladesh; **Jay Varma** – IEIP, China; **Carol Rao** – IEIP, China; **John Klana** – IEIP, China; **Erica Dueger** – IEIP, Egypt; **Wences Arvelo** – IEIP, Guatemala; **Daniel Garcia** – IEIP, Guatemala; **Rob Breiman** – IEIP, Kenya; **Deron Burton** – IEIP, Kenya; **M. Kariuki Njenga** – IEIP, Kenya; **Susan Maloney** – IEIP, Thailand; **Henry Baggett** – IEIP, Thailand; **Leonard Peruski** – IEIP, Thailand - *Excellence in Epidemiology: For significant contributions to the field of epidemiology that have substantially benefitted international public health*, U.S. CDC, Atlanta, GA, USA – 2011

Huai Yang, Nie XiaoJia, Wu ShuYu, and Zhang YuZhi – Group Meritorious Honor Award for their outstanding works in IEIP Team in China, U.S. Embassy, Beijing, China – June 2011

Liang YanJun – Individual Meritorious Honor Award for her contribution to IEIP works in China, U.S. Embassy, Beijing, China – June 2011

Shang Mei, Song Ying, Zhou Suizan – Group Meritorious Honor Award for Influenza Review, U.S. Embassy, Beijing, China – December 2010

Liang Yanjun (June) – Individual Extra Mile Award for IEIP Work, U.S. Embassy, Beijing, China – December 2010

Gao Xing – Individual Meritorious Honor Award for Emergency Response, U.S. Embassy, Beijing, China – December 2010

Zhang Juanjuan (Julia) – Individual International Public Health Leadership Award for Outstanding Performance for reducing stigma and discrimination of HIV/AIDS, U.S. CDC, Atlanta, GA, USA – December 2010

Wu Shuyu – Individual Extra Mile Award for IEIP Work, U.S. Embassy, Beijing, China – September 2010

Zhang Yuzhi – Individual Extra Mile Award for IEIP Work, U.S. Embassy, Beijing, China – September 2010

Nie XiaoJia – Individual Extra Mile Award for IEIP Work, U.S. Embassy, Beijing, China – September 2010

Huai Yang – Individual Extra Mile Award for IEIP Work, U.S. Embassy, Beijing, China – September 2010

Zhang Juanjuan (Julia) – Individual Meritorious Honor Award for Outstanding Performance for reducing stigma and discrimination of HIV/AIDS, U.S. Embassy, Beijing, China – June 2010

Han Lifeng, Li Zhijun (Leland) – Group Meritorious Honor Award for Outstanding Performance for HIV/AIDS Study, U.S. Embassy, Beijing, China – June 2010

Song Ying – Individual Meritorious Honor Award for helping setting new TB collaboration, U.S. Embassy, Beijing, China - December 2009

Gao Xing, Guan Xueni, Guo Shun, Li Bing, Li Manjing, Li Richun, Liang Yanjun, Mao Jie, Nie XiaoJia, Wang Lijun, Xing Wei, Yang Guang, Yuan Xiaodong - Group Franklin Award for their support of Infection Control Meeting in China, U.S. Embassy, Beijing, China - December, 2009

Marc Bulterys – Honor Award presented by Minister of Health Chen Zhu for Outstanding Contributions to HIV/AIDS Prevention in China, International Cooperation Conference on HIV/AIDS, Beijing, November 2011

Marc Bulterys – part of Group Award for Haiti Cholera Response, CDC Center for Global Health, Atlanta, June 2011 (Marc was on detail as acting CDC country director in Haiti, Jan-Feb 2011)

Global HIV/AIDS

Adrienne N. Poon, Zhijun Li, Ning Wang & Yan Hong (2011): Review of HIV and other sexually transmitted infections among female sex workers in China, *AIDS Care: Psychological and Socio-medical Aspects of AIDS/HIV*, 23:sup1, 5-25

Wu Z, Wang Y, Mao Y, Sullivan SG, Juniper N, Bulterys M. The integration of multiple HIV/AIDS projects into a coordinated national programme. *Bull World Health Organ* 2011; 89:227-233.

Zhang F, Dou Z, Ma Y, Zhang Y, Zhao Y, Zhao D, Zhou S, Bulterys M, Zhu H, Chen RY. Effect of earlier initiation of antiretroviral treatment and increased treatment coverage on HIV-related mortality in China: a national observational cohort study. *Lancet Infect Dis* 2011 (published electronically May 19). [This study was highlighted in the May 27 issue of *Science* 2011; 332:1016-7 and also in *Nature*].

Dou Z, Chen RY, Wang Z, Ji G, Peng G, Qiao X, Fu J, Meng X, Bulterys M, Ma Y, Zhao Y, Wang N, Zhang F. HIV-infected former plasma donors in rural Central China: from infection to survival outcomes, 1985-2008. *PLoS ONE* 2010; 5(10):e13737. (pp 1-8)

Duan S, Shen S, Bulterys M, Jia Y, Yang Y, Xiang L, Tian F, Lu L, Xiao Y, Wang M, Jia M, Jiang H, Vermund SH, Jiang Y. Estimation of HIV-1 incidence among five focal populations in Dehong, Yunnan: a hard hit area along a major drug trafficking route. *BMC Public Health* 2010; 10:180.

Jiang Y, Qiu M, Zhang G, Xing W, Xiao Y, Pan P, Yao J, Ou C-Y, Su X. Quality assurance in the HIV/AIDS laboratory network of China. *Int J Epidemiol* 2010; 39:ii72-80.

Ma Y, Zhao D, Yu L, Bulterys M, Robinson ML, Zhao Y, Dou Z, Chiliade P, Wei X, Zhang F. Predictors of virologic failure in HIV-1-infected adults receiving first-line antiretroviral therapy in 8 provinces in China. *Clin Infect Dis* 2010; 50:264-271.

Sun J, Liu H, Li H, Wang L, Guo H, Shan D, Bulterys M, Korhonen C, Hao Y, Ren MH. Contributions of international cooperation projects to the HIV/AIDS response in China. *Int J Epidemiol* 2010; 39:ii21-28.

Wang N on behalf of the National Expert Group on HIV/AIDS Estimation in China. Estimating the number of people living with HIV/AIDS in China: 2003-2009. *Int J Epidemiol* 2010; 39:ii14-20.

Han M, Chen Q, Hao Y, Hu Y, Wang D, Gao Y, Bulterys M. Design and implementation of a China Comprehensive AIDS Response Programme (China CARES), 2003-2008. *Int J Epidemiol* 2010; 39:ii47-55.

Nkengasong JN, Nsubuga P, Nwanyanwu O, Gershby-Damet GM, Roscigno G, Bulterys M, Schoub B, De Cock KM, Birx D. Laboratory systems and services are critical in global health: time to end the neglect? *Am J Clin Pathol* 2010; 134:368-373.

Bulterys M, Vermund SH, Chen RY, Ou CY. A public health approach to rapid scale-up of free antiretroviral treatment in China: an ounce of prevention is worth a pound of cure. *Chin Med J* 2009; 122:1352-1355. [commentary invited by NCAIDS, China CDC]

Zhang F, Dou Z, Ma Y, Zhao Y, Liu Z, Bulterys M, Chen RY. Five-year outcomes of the China National Free Antiretroviral Treatment Program. *Ann Intern Med* 2009; 151:241-251.

Global Disease Detection

Yuan J, Zhang L, Xu W, Shen J, Zhang P, Ma H. Reported changes in health-related behaviours in Chinese urban residents in response to an influenza pandemic. *Epidemiol. Infect* 2009 Jul;137(7):988-993.[cited 2011 Sep 2]

Zeng G, Xie S-Y, Li Q, Ou J-M. Infectivity of severe acute respiratory syndrome during its incubation period. *Biomed. Environ. Sci* 2009 Dec;22(6):502-510.[cited 2011 Sep 2]

Shen J, Feng Z, Zeng G, Zhu B-P. Risk factors for injury during Typhoon Saomei. *Epidemiology* 2009 Nov;20(6):892-895.[cited 2011 Sep 2]

- Han K, Zhu X, He F, Liu L, Zhang L, Ma H, Tang X, Huang T, Zeng G, Zhu BP. Lack of airborne transmission during outbreak of pandemic (H1N1) 2009 among tour group members, China, June 2009. *Emerging Infect. Dis* 2009 Oct;15(10):1578-1581.[cited 2011 Sep 4]
- Ruan F, Yang T, Ma H, Jin Y, Song S, Fontaine RE, Zhu B-P. Risk factors for hand, foot, and mouth disease and herpangina and the preventive effect of hand-washing. *Pediatrics* 2011 Apr;127(4):e898-904.[cited 2011 Sep 2]
- Han K, Ma H, An X, Su Y, Chen J, Lian Z, Zhao J, Zhu B-P, Fontaine RE, Feng Z, Zeng G. Early Use of Glucocorticoids Was a Risk Factor for Critical Disease and Death From pH1N1 Infection. *Clin. Infect. Dis* 2011 Aug;53(4):326-333.[cited 2011 Sep 4]
- Zeng G, Ma H, Wang X, Yan H, Wan X, Jiang B, Fontaine RE, Wu Z, Lin S, Ruan F, Liu H. Paraplegia and paraparesis from intrathecal methotrexate and cytarabine contaminated with trace amounts of vincristine in China during 2007. *J. Clin. Oncol* 2011 May;29(13):1765-1770.[cited 2011 Sep 2]
- Zhou, Jianfang; Li, Zi; Zou, Shumei; Wang, Min; Dong, Jie; Guo, Junfeng; Wei, Hejiang; Wen, Leying; Xu, Hong; Shu, Yuelong. Identification of dual receptor-binding specific strains of human H5N1 viruses in China. *Influenza & Other Respiratory Viruses*. 5 Suppl. 1:439-442, May 2011.
- Bai, Tian; Wang, Dayan; Wang, Min; Xu, Cuiling; Zhou, Jianfang; Dong, Libo; Gao, Yan; Li, Zi; Zou, Shumei; Du, Ning; Zeng, Yuhong; Wei, Hejiang; Zhao, Xiang; Li, Xiyang; Lan, Yu; Yang, Lei; Zhang, Ye; Bo, Hong; Guo, Junfeng; Wen, Leying; Cheng, Yanhui; Li, Xinwan; Tan, Minju; Li, Xiaodan; Wang, Wei; Chen, Yongkun; Shu, Yuelong. Cross-reactive antibody response to pandemic H1N1 2009 in mainland China. *Influenza & Other Respiratory Viruses*. 5 Suppl. 1:373-376, May 2011.
- Yu, Hongjie 1; Feng, Zijian 1; Uyeki, Timothy M. 5; Liao, Qiaohong 1; Zhou, Lei 1; Feng, Luzhao 1; Ye, Min 1; Xiang, Nijuan 1; Huai, Yang 1; Yuan, Yuan 3; Jiang, Hui 1; Zheng, Yingdong 4; Gargiullo, Paul 5; Peng, Zhibin 1; Feng, Yunxia 1; Zheng, Jiandong 1; Xu, Cuiling 2; Zhang, Yanping 2; Shu, Yuelong 2; Gao, Zhancheng 3; Yang, Weizhong 1; Wang, Yu 1. Risk Factors for Severe Illness with 2009 Pandemic Influenza A (H1N1) Virus Infection in China. *Clinical Infectious Diseases*. 52(4):457-465, February 15, 2011.
- Yu, Hongjie 1; Liao, Qiaohong 1; Yuan, Yuan 2; Zhou, Lei 1; Xiang, Nijuan public health officer 1; Huai, Yang public health officer 1; Guo, Xiuhua professor 3; Zheng, Yingdong associate professor 4; van Doorn, Rogier H clinical microbiologist 5; Farrar, Jeremy professor 5; Gao, Zhancheng professor/respiratory physician 2; Feng, Zijian medical epidemiologist/director 1; Wang, Yu professor/director 6; Yang, Weizhong medical epidemiologist/deputy director 6. Effectiveness of oseltamivir on disease progression and viral RNA shedding in patients with mild pandemic 2009 influenza A H1N1: opportunistic retrospective study of medical charts in China. *BMJ*. 341:c4779, October 2, 2010.
- Huai, Yang a; Lin, Jinyan b; Varma, Jay K. c,d; Peng, Zhibin a; He, Jianfeng b; Cheng, Chen a; Zhong, Haojie b; Chen, Yuansheng a; Zheng, Yingdong e; Luo, Yuan a; Liang, Wenjia b; Wu, Xiaoling b; Huang, Zhenyu b; McFarland, Jeffrey c,f; Feng, Zijian a; Uyeki, Timothy M. f; Yu, Hongjie. A primary school outbreak of pandemic 2009 influenza A (H1N1) in China. *Influenza & Other Respiratory Viruses*. 4(5):259-266, September 2010.
- Ma H, He F, Wan J, Jin D, Zhu L, Liu X, Liu Q, Zhang G, Ding Z, Fontaine RE, Zhu B-P, Jian H, Zhang L, Xu W, Zeng G. Glucocorticoid and pyrazolone treatment of acute fever is a risk factor for critical and life-threatening human enterovirus 71 infection during an outbreak in China, 2008. *Pediatr. Infect. Dis. J* 2010 Jun;29(6):524-529.[cited 2011 Sep 2]

Shu, Yuelong 1; Li, Chris Ka-fai 3; Li, Zi 1; Gao, Rongbao 1; Liang, Qian 1; Zhang, Ye 1; Dong, Libo 1; Zhou, Jiangfang 1; Dong, Jie 1; Wang, Dayan 1; Wen, Leying 1; Wang, Ming 1; Bai, Tian 1; Li, Dexin 1; Dong, Xiaoping 1; Yu, Hongjie 2; Yang, Weizhong 2; Wang, Yu 2; Feng, Zijian 2; McMichael, Andrew J. 3; Xu, Xiaoning 3. Avian Influenza A(H5N1) Viruses Can Directly Infect and Replicate in Human Gut Tissues. *Journal of Infectious Diseases*. 201(8):1173-1177, April 15, 2010.

Zhou, Lei 1,a; Liao, Qiaohong 1,a; Dong, Libo 2,a; Huai, Yang 1,a; Bai, Tian 2; Xiang, Nijuan 1; Shu, Yuelong 2; Liu, Wei 4; Wang, Shiwen 2; Qin, Pengzhe 6; Wang, Min 2; Xing, Xuesen 5; Lv, Jun 3; Chen, Ray Y. 7; Feng, Zijian 1; Yang, Weizhong 1; Uyeki, Timothy M. 8; Yu, Hongjie. Risk Factors for Human Illness with Avian Influenza A (H5N1) Virus Infection in China. *Journal of Infectious Diseases*. 199(12):1726-1734, June 15, 2009.

Yuan J, Liu Y, Yang Z, Cai Y, Deng Z, Qin P, Li T, Dong Z, Yan Z, Zhou D, Luo H, Ma H, Pang X, Fontaine RE. Mycobacterium abscessus post-injection abscesses from extrinsic contamination of multiple-dose bottles of normal saline in a rural clinic. *Int. J. Infect. Dis* 2009 Sep;13(5):537-542.[cited 2011 Sep 2]

Non-communicable Diseases

Cridler KS, Zhu JH, Hao L, Yang QH, Yang TP, Gindler JG, Maneval D, Quinlivan E, Li Z, Bailey LB, Berry RJ. Methylene tetrahydrofolate reductase 677C T genotype is associated with folate and homocysteine in a large population-based double-blind trial of folic acid supplementation. *Am J Clin Nutr*. 2011;93:1365-72; First published online April 20, 2011. doi:10.3945/ajcn.110.004671.

Yin P, Zhang M, Li YC, Jiang Y, Zhao WH. Prevalence of COPD and its association with socioeconomic status in China: Findings from China Chronic Disease Risk Factor Surveillance 2007. *BMC Public Health* 2011; 11:586-594.

Zhang YL, Riehle-Colarusso T, Correa A, Li S, Feng XH, Gindler JS, Lin H, Webb C, Li W, Trines J, Berry RJ, Luo Y, Jiang MF, Chen H, Sun XM, Li Z. Observed Prevalence of Congenital Heart Defects from a Surveillance Study in China. *J Ultrasound Med* 2011; 30:989-995.

Jin L, Cogswell M, Ye RW, Liu JM, Berry RJ, Hu D. Prevalence of Anemia among Pregnant Women in Southeast China, 1993-2005. *Pub Health Nutr* 2010;13, 1511-18.

Zhu JH, Hu D, Hao L, Zhang BL, Cogswell ME, Bailey L, Li Z, Berry RJ. Iron, folate, and B12 deficiencies and their associations with anemia among women of childbearing age in a rural area in northern China. *Int J Vitam Nutr Res* 2010;80:144-54.

Global Immunizations

Progress toward measles elimination in the People's Republic of China, 2000-2009.

Ma C, An Z, Hao L, Cairns KL, Zhang Y, Ma J, Cao L, Wen N, Xu W, Liang X, Yang W, Luo H. *J Infect Dis*. 2011 Jul;204 Suppl 1:S447-54.

Yin Z, Wang H, Yang J, Luo H, Li Y, Hadler SC, Sandhu HS, Fischer M, Jiang Y, Zhang Z, Liu G, Li L, Johnson BW, Liang X; Acute Meningitis and Encephalitis Syndrome (AMES) Study Group.

Japanese encephalitis disease burden and clinical features of Japanese encephalitis in four cities in the People's Republic of China. *Am J Trop Med Hyg*. 2010 Oct;83(4):766-73. Factors associated with effectiveness of the first dose of hepatitis B vaccine in China: 1992-2005.

Cui F, Li L, Hadler SC, Wang F, Zheng H, Chen Y, Gong X, Hutin YJ, Cairns KL, Liang X, Yang W. *Vaccine*. 2010 Aug 23;28(37):5973-8. Epub 2010 Jul 15.



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