

Center for Biosecurity Meets with Chinese Public Health & Science Leaders, July 2011

OFFICES WE VISITED

During the week, we had meetings with leaders from the following Chinese institutions.

Health Emergency Response Office (HERO) at the Chinese Ministry of Health (MOH)

This office is responsible for policymaking related to public health events. HERO has 4 divisions: (1) emergency preparedness; (2) emergency response; (3) surveillance, prewarning, and communications; and (4) a comprehensive division for laws, regulations, planning, and coordination.

Office of Disease Control and Emergency Response (ODCER) within the Chinese Centers for Disease Control

China's CDC, formed in early 2002, has approximately 3,000 staff. It provides technical support and reports to the MOH. ODCER's mission includes countrywide surveillance of infectious diseases, implementation of early-warning systems, field investigation, and development of technical guidelines for disease prevention and control of emerging and reemerging infectious diseases.

Institute of Microbiology in the Chinese Academy of Sciences (CAS)

This is the leading microbiological institute in China, with approximately 430 faculty and staff.

The CAMS-Fondation Mérieux Lab within the Chinese Institute of Pathogen Biology

This institute was formed after SARS and plays an important role in research for pathogen detection and identification.

Trip Report

Tom Inglesby and Anita Cicero

China, like the U.S., has had to cope with a range of disease outbreaks in recent years and continues to prepare for future emerging and reemerging infectious disease threats. Over the past few years, the Center for Biosecurity has benefited greatly from policy discussions with government officials and nongovernment leaders in other countries, including Canada, Israel, the United Kingdom, and France. We were eager to be able to connect with Chinese experts and learn from them about disease detection and control, as well as healthcare preparedness and community resilience in the world's most populous country.



Campus of the Institute of Microbiology, Beijing

On July 10-18, 2011, we traveled to Beijing with the goal of forging new relationships and participating in a series of informative exchanges with Chinese public health officials and infectious disease scientists who have responsibilities related to the following:

- Planning and response to infectious disease epidemics (eg, pandemic flu, H5N1, future pandemics, and lessons from SARS and H1N1)
- Disease surveillance for early warning of outbreaks
- Disease control and containment efforts
- Development of vaccines and medicines for emerging infectious diseases
- Hospital preparedness for public health emergencies
- Biosafety and biosecurity

In our various meetings, we shared the Center's independent analysis of U.S. government and private sector approaches to these issues, and our hosts described China's efforts in these areas. The trip exceeded our high expectations for a valuable exchange of information on these and other topics.

From the U.S. Embassy in Beijing, Melinda Frost, Health Communications Officer in the CDC Section, and Elizabeth Yuan, HHS Health Attaché, provided a useful orientation for us and helped to identify important Chinese leaders and institutions in this field. To a person, both our Chinese hosts and U.S. Embassy contacts were gracious and generous with their time.

Observations and Highlights

For those who may be interested in U.S.–China interactions in public health and the life sciences, we offer the following observations from our trip, with the hope that they may increase understanding, diminish misperceptions, and encourage future constructive collaborations.

Life Sciences Are On the Rise in China

Prominent Chinese scientists are returning to China from labs in the U.S. and elsewhere in the world. The scientists we met seemed quite positive about U.S.



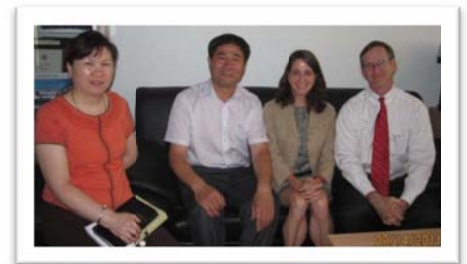
Anita Cicero, Tom Inglesby, Dr. Gao Xing, U.S. CDC; CDC-GAP China Office, Emergency Preparedness and Response Coordinator

science and their colleagues and experiences in the United States. They are also eager to be part of the new wave of Chinese science efforts, which are respected, well-funded, and a named priority in China's current "Five-Year Plan."

This Plan guides economic development initiatives over a 5-year period, and the current Plan emphasizes, among other initiatives, an increase in spending on research and development to 2.2% of GDP by 2015. As one scientist told us, "Money is not a problem now for us—if we have a good idea, it gets funded."

This strategic capital investment in the sciences and public health is tangible, especially with the current building boom in the science sector. New state-of-the-art buildings and laboratories are finished, under construction, or planned for construction over the next year on the beautiful campuses at the China CDC, the Institute of Microbiology of the Chinese Academy of Sciences, and the CAMS-Fondation Mérieux Lab and the greater Institute of Pathogen Biology, among other places. The design of the campuses and their buildings seems thoughtful, well planned, and intended to accommodate future growth.

We were told that the president of the Chinese Academy of Sciences has been known to use the slogan, "Tiny bugs, high technology, big business." The academy, which now comprises 103 institutes, more than 100 national key laboratories, and more than 54,000 staff, is expected to grow to 70,000 staff within 5 years. There seemed to be a strong sense of purpose in government-funded science projects and a drive to use the latest technology, invest in advance development, and commercialize new diagnostic tools, vaccines, and medicines to address a wide range of diseases.



Dr. Yiping Zhu, Associate Professor, Chinese Academy of Science (CAS); Dr. Frank Liu, Professor, CAS; Anita Cicero, and Tom Inglesby



Chinese Center for Disease Control and Prevention

We toured the lab of Dr. Frank Liu at the Institute of Microbiology and learned about the latest research he was doing on avian influenza and the development of new antivirals. On the walls outside his and other labs are posters in English and Mandarin exhibiting work from the institute published in *Science*, *Nature*, *Cell*, *NEJM*, *Proceedings of the National Academy of Sciences*, and other well-known journals. There was a clear interest in international collaboration in a number of the organizations we visited, with dedicated offices set up to facilitate such exchanges.

China Trip Report: Observations and Highlights

Advances in Public Health Preparedness—the SARS Effect

In the area of public health preparedness, the 2003 SARS outbreak was a turning point for China. We heard repeatedly about how the challenges of SARS have led to major concerted efforts to improve and modernize preparedness and response efforts for infectious disease outbreaks. Following SARS, the Chinese government set up a whole new system for emergency preparedness and response, which included preparedness for natural disasters, public health events, social security, and accidents. The Ministry of Health is the lead ministry for public health events.

SARS under-scored the importance of evidence-based decision making in controlling outbreaks. Infectious disease laboratory capacity grew from approximately 80 labs to the approximately 400 labs that exist today. China's CDC and other scientific and laboratory resources in the country play important roles in utilizing technologies to provide the MOH and others with the scientific facts, data, and expert judgments necessary to make decisions for outbreak control and response. In the event of an epidemic, MOH HERO would plan to gather as much information and evidence as possible, both from the China CDC, laboratories within the CAS, and, as appropriate, the World Health Organization. It would also convene meetings with expert clinicians, sociological experts, and others to assess the outbreak and identify options for managing it.



Dr. Feng Zijian, China CDC, ODCER, Executive Director, China-U.S. Collaborative Program on Emerging Infectious Disease and Tom Inglesby

collaborating on initiatives ranging from HIV and TB to influenza, emerging infectious diseases, and a number of chronic health problems. There is also a close and effective cooperation between the U.S. and China CDCs in the Field Epidemiology and Training Program (FETP), which provides high-caliber epidemiology training to Chinese health officials.

Dr. Feng Zijian, an accomplished public health scientist and published scholar on epidemic response, is Director of ODCER and Executive Director of the China-U.S. Collaborative Program on Emerging Infectious Disease. He spent nearly a year—including much of the period of the 2009 H1N1 response—in Atlanta working side by side with his U.S. CDC counterparts and sharing ideas and best practices. His deputy director will also take part in this exchange at the U.S. CDC.

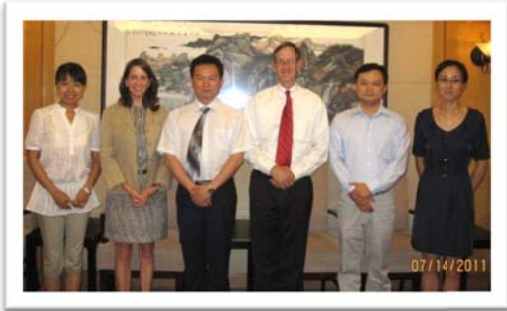
Another marker of the success and closeness of the collaboration between the U.S. and China CDCs was the career path of one of our hosts, Dr. Gao Xing, the Emergency Preparedness Coordinator at the U.S. CDC in Beijing. An accomplished and published physician and scientist in his own right, he had earlier worked with the China CDC and now is an important staff member of the U.S. CDC in Beijing. His involvement in both organizations clearly helps to facilitate the good working relationship between the two organizations.

Improving risk communications is another area of focus in Chinese preparedness efforts. We were told that there is a concerted intention to increase transparency and communications, both before and during future



Dr. Feng Zijian and his staff with Tom Inglesby, Anita Cicero, and Dr. Gao Xing at the Chinese CDC

China Trip Report: Observations and Highlights



Dr. Wu Jing, Director, Division of Precaution, Office of Health Emergency, and his staff, with Anita Cicero, Tom Inglesby, and Dr. Gao Xing

epidemics. There appeared to be a particular awareness of the need for effective communications with both local governments and the media. As in the U.S., many of the key players during an outbreak are at the community level in China.

Both the MOH and China's CDC are working hard to determine the best ways to improve availability of evidence-based data that will give local leaders the information they need for good decision making during public health crises.

We had a number of candid exchanges with our hosts about the tensions that exist both in the U.S. and China between evidence-based public health recommendations on the one hand and the political realities of managing large public health emergencies on the other. To some extent, this tension will always exist, but there was agreement that a well-resourced and expert public health infrastructure is critical in providing decision makers with the best evidence and tools for good decisions.

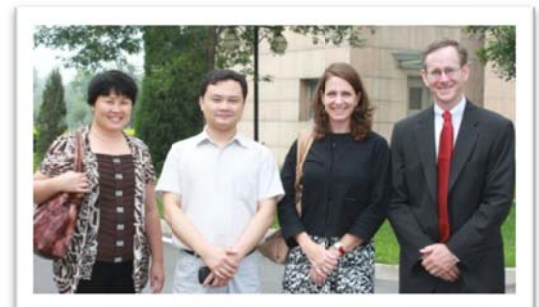
Shared Concerns about Dual Use Science

We also had the opportunity to speak with the Director of the Institute of Microbiology, Dr. Li Huang, about the efforts in China, the U.S., and internationally to educate the life sciences community about dual-use research and to promote a culture of responsibility among scientists who research and publish in the life sciences. Like the biosecurity policy community in the U.S., Dr. Huang and his colleagues appreciate that trends and advances in science and technology are relevant to ongoing concerns about biosecurity and discussions under the Biological Weapons Convention. Dr. Huang actively participates in international forums to address dual-use issues.

He has represented CAS in bilateral conversations on dual-use research with the National Science Advisory Board for Biosecurity (NSABB); he participates in WHO workshops on biorisks; and he is a member of the Inter-Academy Panel on International Issues Working Group on Biosecurity.

We discussed with Dr. Huang important trends in the life sciences that may have dual-use potential, including systems biology, synthetic biology, genomics, bioinformatics, and gene silencing, among others. He shared our concern that the dual-use potential of various technologies is not widely appreciated by many in the science community, and we agreed that our countries

have a shared responsibility to raise awareness of these issues. We discussed the view that, while regulation has an important role to play in research with dual-use potential, care should be taken to avoid unduly inhibiting the practice of good science by imposing onerous security measures.



Audrey Li, Interpreter; Dr. Gao Xing, Anita Cicero, and Tom Inglesby

Value of Continuing Exchanges

We left China with an interest in furthering these and other scientific and health exchanges. The improved understanding we have of China's policy and practices in public health emergency response gave us valuable perspectives and ideas that will inform our thinking about U.S. preparedness efforts. We look forward to new opportunities to share views with our Chinese colleagues and to finding ways to work together in the future. These kinds of exchanges help us to become more familiar with each other's patterns of thinking and approaches to new epidemics and crises. In the next flu pandemic or other international infectious disease emergency, we will have these relationships and common understandings to draw upon as we work in common purpose to respond.