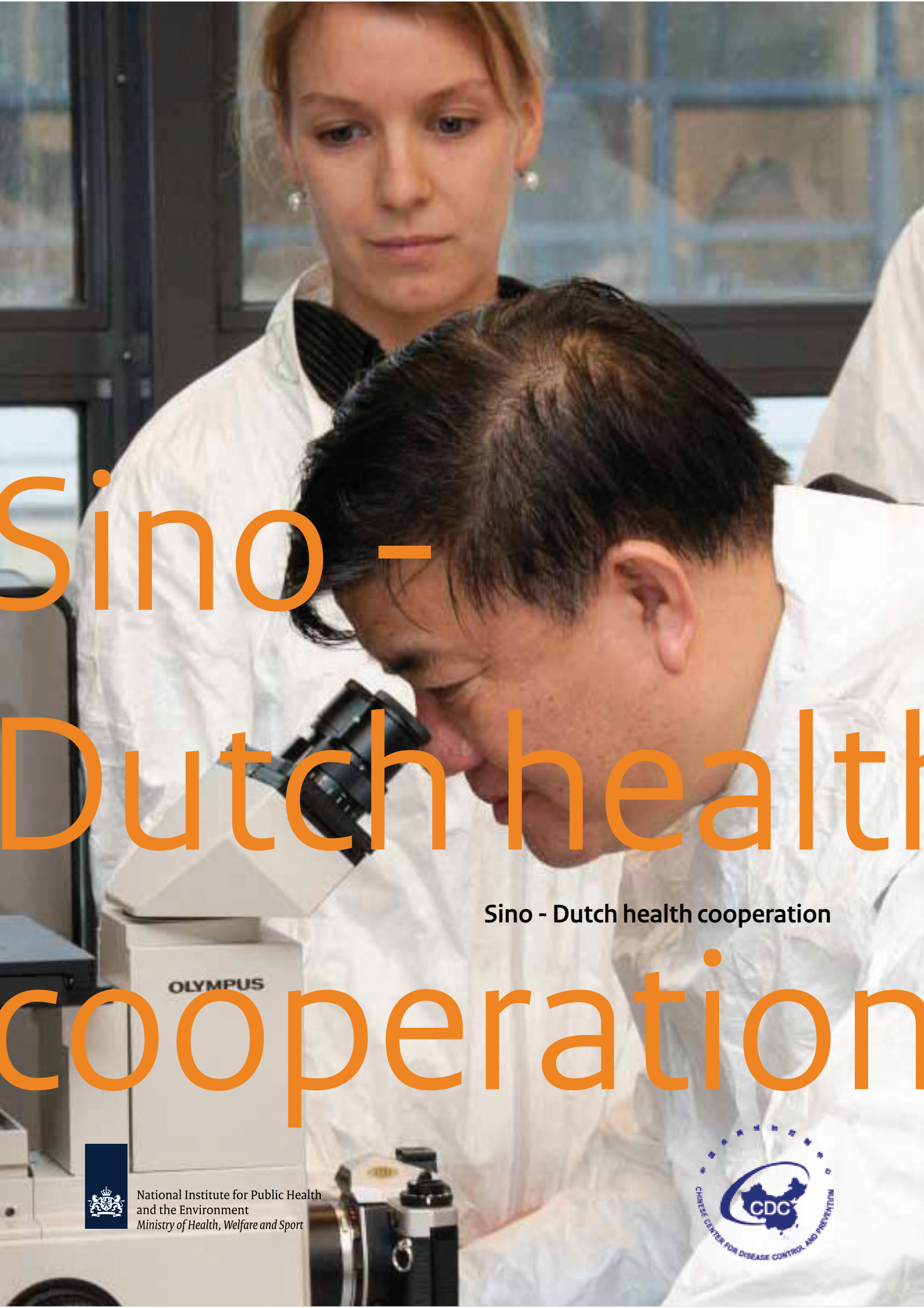


Sino - Dutch health cooperation

Sino - Dutch health cooperation

National Institute for Public Health
and the Environment
Ministry of Health, Welfare and Sport

CDC
CHINESE CENTER FOR DISEASE CONTROL AND PREVENTION

Sino - Dutch health cooperation

In accordance with the Agreement and Action Plan between the Ministry of Health of the People's Republic of China and the Ministry of Health, Welfare and Sport in the Netherlands

(Progress Report 2005 – 2011)

August/2012

Preface

Throughout history, the People's Republic of China and the Netherlands have had an excellent relation. The MoU, signed in 2005, boasted the mutual collaboration in the public health domain substantially. We have great respect for the approach that the RIVM and CCDC experts followed to exchange their knowledge and expertise. Although the Netherlands and China differ substantially in size, geography and culture, the bilateral collaboration has improved the knowledge and expertise in several fields of the health domain. The projects on infectious diseases, health information, food safety and nutrition, funded by the MoU have definitely contributed to improved scientific understanding and methodologies.
We strongly believe that this will ultimately result in healthier citizens in both countries.
Of course we have to mention that these projects couldn't have been performed without the financing of the respective Ministries of Health and we are very grateful for their support.
We hope that the collaboration can be continued because we expect that both countries, the Netherlands and the People's Republic of China, will also benefit in the future from this initiative. We are convinced that global problems require global solutions.

Prof. dr. A.N. van der Zande
Director general
RIVM

WANG Yu, M.D.,Ph.D.
Director general
China CDC

Mr. Marc Sprenger (Director-general RIVM 2003-2010) and Mr. Wen Jiabao (Prime Minister of the People's Republic of China)

General introduction

Public health has been an area of joint concern for the Netherlands and China over the last decade. Diseases do not stop at borders. During the past decade China has been faced with emerging global health risks such as SARS, avian influenza and the pandemic flu. Also new health threats such as tuberculosis and anti microbial resistance are of concern and necessitate cooperation in the field of public health. Food safety is an interesting subject to address because of the large amounts of import and export of food commodities between the Netherlands and China. Knowledge in the field of nutrition is also useful because of similar problems.

Prime Minister Wen Jiabao of the People's Republic of China visited the Netherlands in December 2004 on the occasion of the EU Presidency of the Netherlands. During this visit he requested the former Minister of Health, Welfare and Sport, Hans Hoogervorst, to organize a meeting with experts of the Ministry of Health, Welfare and Sport and the National Institute for Public Health and the Environment (RIVM) to learn how to combat the spread of infectious diseases and a possible global pandemic of human influenza through the exchange of knowledge on the prevention and monitoring of such outbreaks, particularly in the field of risk assessment.

RIVM was invited by the Dutch Minister to describe the role and expertise of RIVM in public health and environmental issues. In the Netherlands it is the task of RIVM to promote the health of the citizens and to protect the environment by providing policy support to the government.

As the health threats in the Netherlands and China are very similar, it was agreed between the Chinese and Dutch leaders that knowledge exchange can help to address these threats more efficiently in both countries.

As a follow up, the former Minister Hans Hoogervorst visited China in Spring 2005 with a delegation from the Ministry of Health, Welfare and Sport and the RIVM. Both parties acknowledged that people in both countries would benefit greatly from the application of this knowledge. On that occasion a bilateral Memorandum of Understanding was signed by both the Minister of Health of the People's Republic of China and the Minister of Health, Welfare and Sport in the Netherlands.

From this time on China CDC and RIVM became executing partners in several projects focusing on reducing health risks and threats in both countries.

Mr. Marc Sprenger (Director-general RIVM 2003-2010) and Mr. CHEN Zhu (Minister of Health of the People's Republic of China)

Memorandum of Understanding

The Memorandum of Understanding (MoU) and the respective Plans of Action provide a framework for the bilateral cooperation between the China CDC and the RIVM:
'In view of the wish to jointly invest in global health, and the wish to cooperate in the battle against global public health risks and threats, helping each other and sharing experience, which will benefit the people of two countries and the development of medical science, have resolved to sign the agreement in the health care and public health with special reference to prevention and control of infectious diseases'.

The main areas of mutual action were summarized as follows:
'Both parties will exchange information and views on policies, management, organisation, infrastructure, research, methods and services in the field of public health and health care and both parties shall encourage direct contacts and exchanges of knowledge and expertise between relevant departments of both Ministries, related institutions and other relevant partners in the field of public health and health care'.
In accordance with the areas laid down in the MoU, special attention was initially given to:

- Infectious diseases
- Innovation in pharmaceuticals related to public health
- Primary health care
- Food safety
- Non communicable diseases

In January 2008 the Chinese Minister of Health, Mr CHEN Zhu, visited the Netherlands. At the Ministry of Health, Welfare and Sport two topics of the Health Care Reform in the Netherlands and China were discussed as well as the topic of prevention, disease management and primary health care.
Minister CHEN Zhu visited the RIVM and was informed about the progress of the Dutch activities of the cooperation in the fields of infectious diseases, nutrition, and food safety.
In 2010 the Vice-Minister of Health in China, Mr. YIN Li, visited the RIVM. The aim of his visit was to become acquainted with each other and to monitor the progress of the projects. Additionally, this was a good moment to further sharpen the formulations of the cooperation items.

This visit resulted in the input for a new action plan. That action plan has since been developed and was agreed upon by both parties at the Director general level of both Ministries during the meeting of the Director general Public Health of the Netherlands, Mr. Paul Huijts, with Director general for International Affairs, Dr. Ren Minghui in Beijing in June 2011.
Some fields of cooperation are new while others will be continued. The following fields for cooperation were agreed upon:

- Infectious diseases (TB, Influenza and laboratory surveillance system)
- Antimicrobial resistance and operational research
- Overweight, obesity and diet-related chronic diseases
- Health systems: in particular performance and system indicators
- Nutrition and health
- Food safety
- Rehabilitation medicine

Partners

The following two institutions related to the Ministries of Health were involved in the realization of the Memorandum of Understanding (Mou) and were requested to develop projects in accordance with the MoU:

- Chinese Center for Disease Control and Prevention of the People's Republic of China (China CDC)
- National Institute for Public Health and the Environment (RIVM)

The involvement of other partners steadily increased as the project activities progressed. The main institutions involved are mentioned below:

- Guangdong CDC
- Heilongjiang Provincial Tuberculosis Control Center
- Tuberculosis Reference Laboratory in Shandong Chest Hospital/TB Center
- Tuberculosis Laboratory in Zhanjiang, Guangdong Province
- Department of Pharmacology (Beijing University)
- Beijing CDC
- Military CDC
- Stichting Werkgroep Antibiotica Beleid (SWAB) (Foundation Working Group Antibiotic Policy)
- China National Health Research Development Center (Beijing)

Project results

The cooperation between Chinese and Dutch experts has benefited both parties through the sharing of knowledge and experiences. The Dutch experiences have supported Chinese experts to develop skills and methods, and it has greatly improved their various systems, such as surveillance of infectious diseases, diagnosis and treatment of tuberculosis, anti-microbial surveillance, risk assessment of food safety and chemicals, interventions on nutrition, health indicators. At the same time Chinese experiences are of great value to the Dutch experts with respect to knowledge exchange in the field of new infectious diseases, food safety of products that will be imported into the European/Dutch market and because of the larger population sizes.
Moreover, knowledge exchange and joint workshops on tuberculosis, influenza, anti-microbial resistance have improved our ability to tackle these health threats. Besides it helps the Netherlands (RIVM) to be better prepared to combat the spread of these diseases should they reach our borders, and also contributes in preventing these diseases from becoming a health threat to the Dutch public and the world at large. Data provided by countries with a large population is statistically sounder than data provided by countries with a small population. For example, models and interventions developed by RIVM experts could be tested and fine tuned and thus reduce uncertainty. In general, it can be said that the cooperation has been beneficial to both institutions involved.

The following section describes the activities carried out in each area. The benefits of the projects for both China and the Netherlands, resulting from cooperation in the different areas, are highlighted in the boxes.

Infectious diseases: virology

Based on the experiences with SARS and highly pathogenic avian influenza, China has developed the CDC system, and built high-tech advanced facilities for surveillance across China. The implementation of such surveillance, however, requires investment in human capital.
RIVM was able to provide support to Guangdong CDC (GDCDC) because of its vast experience in laboratory-based surveillance and support. Diseases at the human-animal interface were a second reason for cooperation, as both countries are considered to be hot spots for zoonotic disease emergence. The last five year period was successful, and especially GDCDC in particular benefited.

The virology project consisted of four sub projects:

a. *Influenza surveillance and antiviral resistance testing*

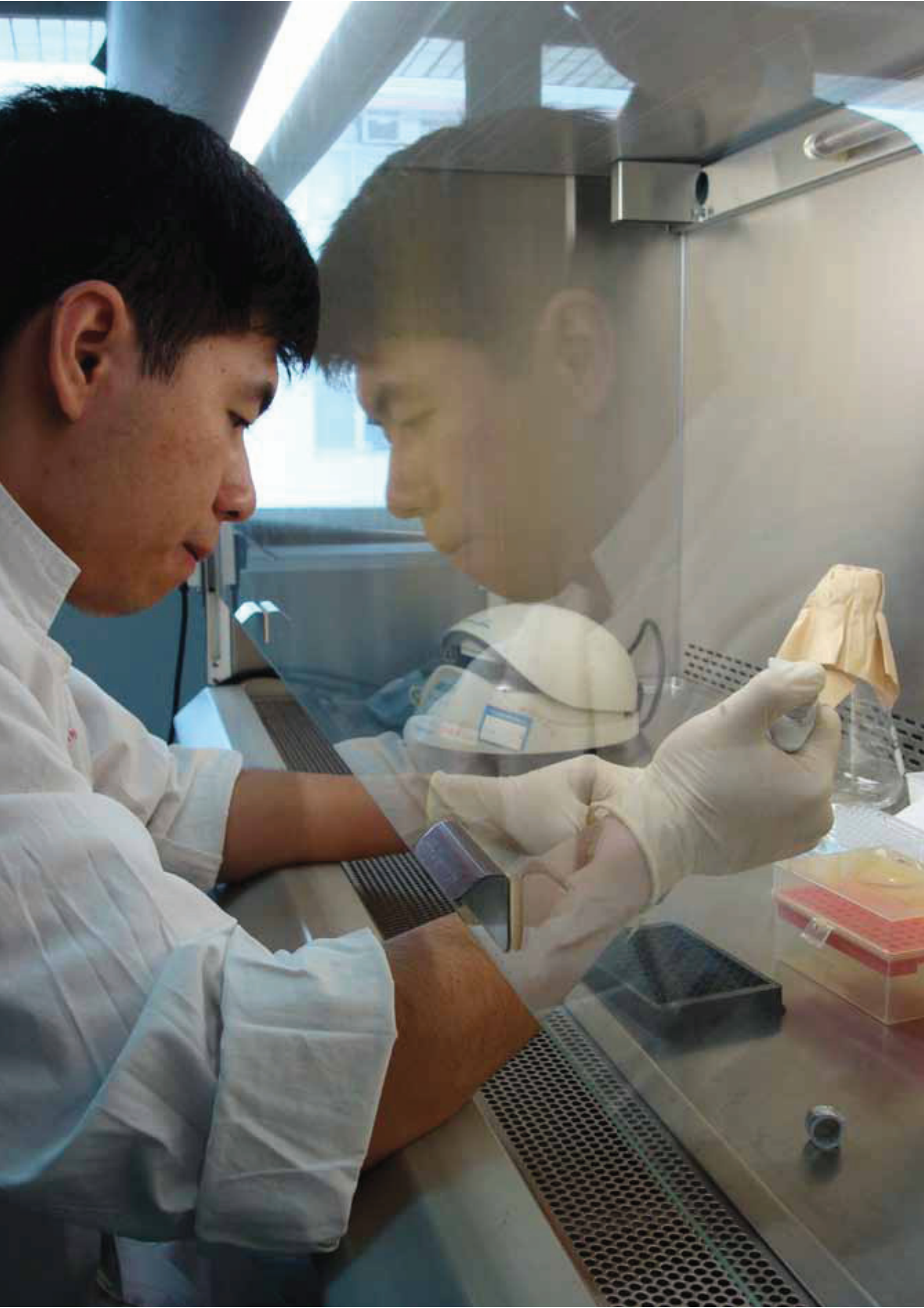
Influenza is one of the important respiratory infections, causing illness with the most severe impact in young children and the elderly. On rare occasions, new influenza viruses are introduced into the human population from the animal world, especially through poultry and pigs. Influenza is controlled through vaccination, but production of vaccines for new pandemic strains takes several months. Therefore, pandemic preparedness plans rely on the targeted use of antiviral drugs in the early stages of a pandemic. The choice of available drugs is limited, and it is therefore crucial to monitor whether the strains that circulate are sensitive to such treatment. As part of the collaboration, protocols for antiviral resistance testing in the surveillance context were exchanged in 2008 and 2009, staff members were exchanged for training visits, and antiviral resistance testing was established as part of routine surveillance in Guangdong (GD).

b. *Food-borne viruses*

GD-CDC is developing a system for surveillance of food- and waterborne viral disease outbreaks modelled upon the EU-wide system that was developed by RIVM. Expanding this network is important, because the food market is becoming increasingly globalized. Protocols and staff were exchanged in 2008 and 2009, to study how data can be compared between countries. Collaboration on zoonotic infectious diseases and food safety is of major importance both now and in the future.

c.. *Enterovirus surveillance for global eradication of polio viruses*

GD-CDC is charged with the systematic analysis of enterovirus isolates to document the absence of polioviruses in the GD-province. RIVM is one of the specialized polio virus reference laboratories in WHO's global eradication network. Large epidemics of enterovirus type 71 with various symptoms (hand-foot and mouth disease, neurological disease, severe respiratory disease, conjunctivitis) have been detected in South East Asia in recent years. A collaborative research project was developed to compare the viruses circulating in China with those circulating in Europe to address the question of whether these outbreaks constitute a health risk to European citizens. For this, protocols and data were exchanged, and a training workshop was organized in December 2010. A joint publication was drafted in 2011. Continuing research on enteroviruses, surveillance on poliovirus mutation and recombination will lead to more knowledge and experience for the benefit of both countries.



d. Development of laboratory support for studies at the human-animal interface

GD-CDC was appointed as WHO collaborating center for surveillance, research and training of emerging infectious disease. The strengthening of infectious disease surveillance and emergency response involve different sectors, such as health, agriculture, forestry and border port authorities. RIVM staff were invited to give lectures in two meetings. A survey of laboratory capacity was launched, and joint study visits were carried out in 2008 and 2010 to discuss collaboration between the agricultural sector and the public health sector.

Moreover, GD-CDC expressed an interest in novel technology developed by RIVM, which measures antibodies to zoonotic viruses in people working with animals. GD-CDC staff were trained to work with this technology, and a test kit was provided in late 2011. Studies are ongoing to screen blood samples collected during surveys in China, in order to evaluate the usefulness of this approach.

GD-CDC has launched a pilot surveillance system in collaboration with 3 city CDCs. A meeting was held in 2010 to discuss possible ways forward, and it was concluded that - based on preliminary findings - more emphasis should be placed on common food-borne bacteria.
The GD-CDC developed a training program for technicians from city CDCs, in which RIVM staff participated as trainers. The surveillance is now fully operational.

Benefits of this cooperation for RIVM:

- Insight into the development and functioning of laboratory infectious diseases surveillance in Guangdong. This was very relevant because South-China is a potential source of new infectious diseases, including the influenza virus.
- Validation of methodologies for fast detection of new infectious diseases.
- Insight into the potential risks of outbreaks, for instance of hand-foot and mouth disease, for the Netherlands and/or Europe.

Expected results of future cooperation:

- To continue developing laboratory methods for surveillance of zoonotic diseases.
- Joint cooperation to expand our knowledge on arboviruses. This is important knowledge for the Netherlands because of the enlargement of the Kingdom of the Netherlands with the Caribbean islands: Bonaire, S\t Eustatius and Saba.

RIVM Virology laboratory

Tuberculosis

Tuberculosis (TB) remains one of the most deadly infectious diseases in the world. Despite huge efforts of the WHO in the past decades one third of the human population is still latently infected, and the incidence of TB is decreasing very slowly, by less than 1% per year. The TB control is particularly threatened by the emergence of multi-drug resistant tuberculosis (MDR-TB) and extensive drug resistant tuberculosis (XDR-TB). MDR- and XDR-TB occurs mainly in areas with poor TB control programs. The quality of diagnosis and treatment of TB in China is still at a low level, and the rate of resistance (and the absolute number of resistant cases) is among the highest in the world. More than 5% of the TB cases in China are reported as MDR-TB. Therefore, there is a great need for training in the diagnosis and treatment of TB, especially regarding MDR- and XDR-TB.
A large part of the problem of MDR- and XDR-TB can be attributed to the Beijing genotype strains of *Mycobacterium tuberculosis*. In order to understand the current dynamics in the worldwide TB epidemic it is important to investigate the role of the evolutionary change in Beijing bacteria in relation to the development of resistance. China has the highest density of Beijing strains worldwide. Therefore, molecular epidemiological and phylogenetic analysis of the Beijing strains in China is of paramount importance to TB control world wide.

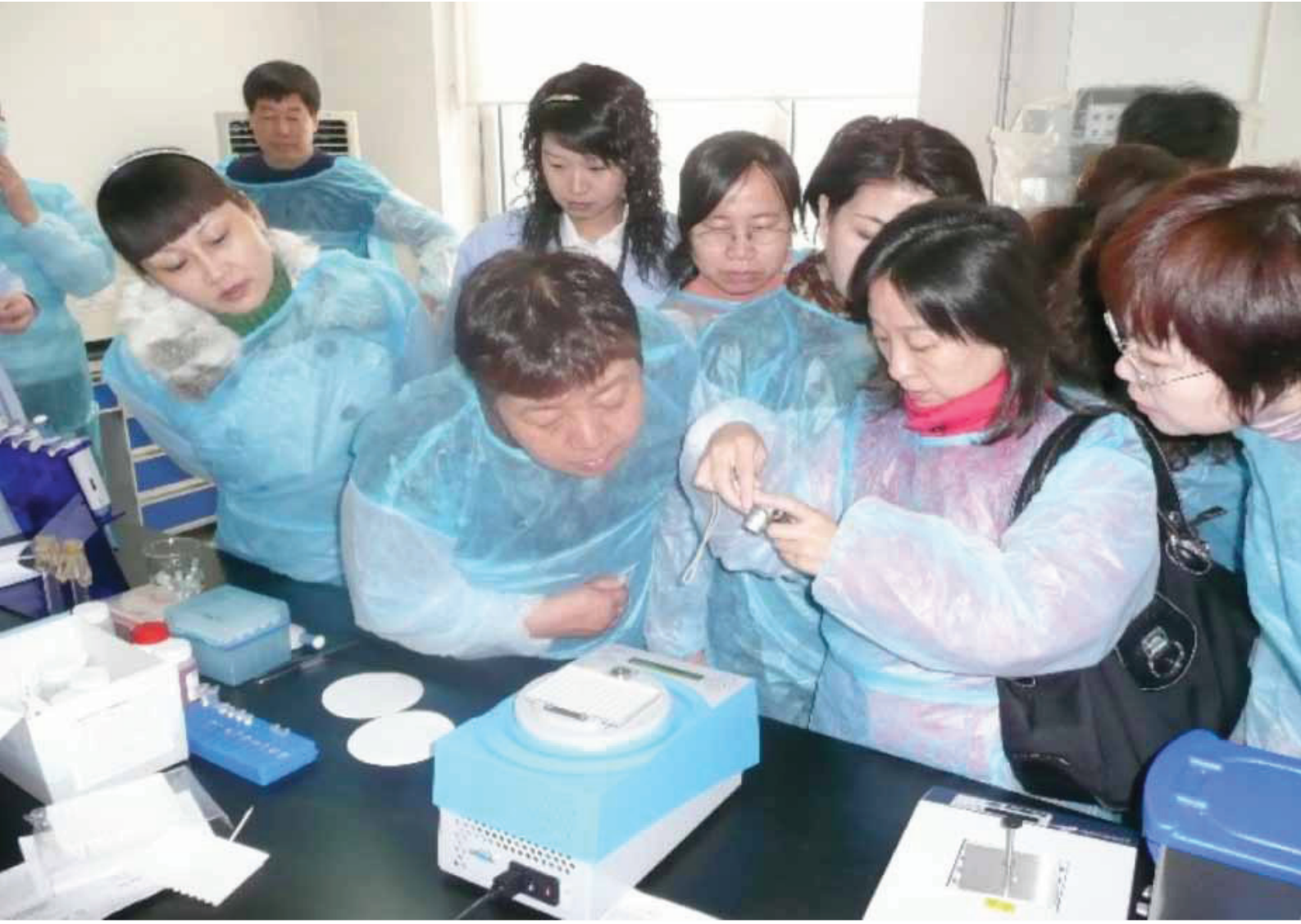
TB experts at the Dutch National Tuberculosis Reference Laboratory and Chinese TB experts have discussed the possibility of upgrading the diagnosis and treatment of TB in China in the near future. During the period 2009-2011, new tools for the diagnostics of TB, with a focus on molecular methods, were introduced and demonstrated at the Heilongjiang Provincial Tuberculosis Control Center, the Tuberculosis Reference Laboratory in Shandong Chest Hospital/TB Center and the Tuberculosis laboratory in Zhanjiang (Guangdong Province), including:

- fluorescence microscopy operated by Light Emitting Diodes (LEDs)
- molecular identification and molecular detection of INH and rifampicin resistance. In addition, several presentations were held on modern tools in the diagnosis of tuberculosis.
- quality assurance and biosafety in the tuberculosis laboratory
- treatment of MDR- and XDR-TB

The Heilongjiang, Shandong and Guangdong Provinces were selected for workshops because of

- the high prevalence of multi-drug resistant TB;
- the motivation of the staff of these institutes to improve this situation;
- the possibilities to perform molecular epidemiological research on the role of the Beijing genotype in the TB epidemic in China.

The participants of the workshop are mostly laboratory technicians at central and provincial level. Furthermore, China CDC selects staff to attend training at the RIVM for one month each year. Both parties have expressed that a long-term commitment would be extremely worthwhile. Both would like to expand the scope and depth of their cooperation, and in 2012 initial steps were taken to extend the cooperation from the TB laboratory to the TB clinic.



Practical training in molecular diagnostics of TB at the Tuberculosis Institute in Harbin

Multidrug resistant tuberculosis is a growing problem worldwide, and a major concern of TB professionals. In this project, Dutch and Chinese experts work together to exchange their knowledge about TB. This project will therefore result in better diagnosis and treatment of TB in China, and in a better understanding of the Beijing genotype.

Benefits of this cooperation for RIVM:

- scientific collaboration with China (China CDC) on the major genotype of Mycobacterium tuberculosis behind the worldwide resistance problem; the Beijing lineage; to determine its evolutionary development and association with patients' characteristics and epidemiological parameters;
- insight into the state-of-the-art of TB control in the country with the highest burden of TB and the possibility to directly contribute to capacity building;
- comparison of Beijing strains from China to the ones circulating in Europe and causing most of the transmissions of multidrug resistant TB.

Expected results of future cooperation:

- access to study sites in China for new drugs and new therapies to treat tuberculosis;
- contribution to improved TB control in China in general;
- determination of the origin of Beijing strains in comparison to its current evolution.

Prof. dr. Dick van Soolingen and Prof. Xie Yanguang, director of the Heilongjiang Provincial Tuberculosis Control Center

Antibiotic resistance

Resistance of opportunistic pathogens and their acquisition through health care services (health care-associated infections, HAIs) constitute a large burden on the Chinese Health Care System. In many large hospitals the rate of methicillin-resistant *Staphylococcus aureus* (MRSA) among bloodstream infections is high. Livestock MRSA also exists in China and was found to colonise large proportions of pigs in six different provinces.
RIVM has longstanding experience with the setting up of large-scale surveillance networks in antimicrobial resistance (AMR); RIVM was the founding institution of the European Antimicrobial Resistance Surveillance System (EARSS).
In close cooperation with the Department of Pharmacology of Beijing University, training sessions (2008) were organised for the application of specific software tools to accommodate the digital communication of routine AMR data from diagnostic microbiological laboratories in hospitals. This enhanced the management of data of a large surveillance initiative consisting of numerous hospital laboratories throughout China.

Beijing University Hospital (selling of medicines such as antibiotics)

In October 2010 Chinese technical experts from the Civil CDC and Military CDC were trained at RIVM in molecular sequence-based typing and a range of communication platforms (including Type-Ned and MLVA.net).
Project work has been underway since 2009 to foster the understanding of the occurrence, transmission and risk factors of high risk clones of hospital, community and livestock associated *Staphylococcus aureus* among inhabitants and patients of urban centres in China. A selection of isolates commonly associated with farm animals in Europe is currently being investigated by deep DNA sequencing in order to define the common origins of internationally spreading bacteria.

Workshops on capacity building in DNA sequence-based (molecular epidemiological) typing are expected to continue on an annual basis.
Importantly, secondments of young researchers to the RIVM and Dutch academic centres is expected to result in successful project work with mutual scientific and public health benefit.
Reciprocal visits by delegations from the Ministry of Health, such as the Expert Committee of Rational Drug Use and the SWAB will have a bearing on the development of guidelines towards a more efficient use of antibiotics in hospitals and the community.

The activities in this project have led to an improved network in China for AMR surveillance. At this moment some 280 hospitals use the software to report antibiotic resistance data within the remit of the Ministry of Health National Antibiotic Resistance Network (MOHNARIN).
Chinese technical experts from the Civil CDC and Military CDC were trained at RIVM in molecular sequence-based typing.

Benefits of this cooperation for RIVM:

- antimicrobial resistance (AMR) is an increasing global problem. Awareness of this problem among policy makers in China's Ministry of Health is of crucial interest for the future of antimicrobial effectiveness. The cooperation between China CDC and RIVM has strengthened the international position of RIVM as a leading institute in AMR surveillance and molecular epidemiology.

Expected results of future cooperation:

- setting up a molecular platform at China CDC which will be modelled on the RIVM template. This will enhance RIVM´s ability to exchange information and knowledge on the spread of antibiotic resistant clones with particular public health importance;
- guideline development on prudent antibiotic use in China will also be based upon experiences gathered by RIVM and SWAB.

Training room: Xaio Yonghong (fourth person from left) and Prof. dr. Hajo Grundmann (in the middle)

Food safety

In China contamination of food products may occur (*e.g.* arsenic in seaweed or bacterial contamination of meat) which may pose a risk to Chinese consumers or could lead to problems in international trade.

In 2007 a China CDC delegation of 6 people under the leadership of Vice-Director Wang Zhutian which included Wu Yongning (Research Fellow), Wanglin (Associate Research Fellow), Liu Xiumei, Li Fengqin and Xu Haibin (all Research Fellows) visited RIVM to learn more about RIVM's *in vitro* digestion model. *In vitro* digestion models enable simulation of the release (bioaccessibility) of a contaminant from a matrix (*e.g.* food) during transit in the gastrointestinal tract, with a three-step procedure simulating the digestion process in mouth, stomach and intestine successively. The China experts were specifically interested in:

- arsenic contaminated rice and seaweed, because in certain areas high natural concentrations are observed in rice and seaweed which may lead to adverse health effects;
- aflatoxin B1 (a mycotoxin) contamination of maize and grain, because in wet years mycotoxin contamination is a problem in China and can lead to difficulties in (inter)national trade and health risks.

Workshop at RIVM, 2009

In 2009 delegations from RIVM and China CDC visited each other's institutes. The RIVM expert delegation included: Rolaf van Leeuwen, Bas Bokkers, Wim Mennes (three toxicologists), Esther Brandon (pharmacokineticist), Arie Havelaar, Jurgen Chardon, Kirsten Mooijman (three microbiologists). The Chinese expert delegation (from the Ministry of Health supervision, Department of Public Health in China CDC, CDC in 10 provinces and the National Institute for Nutrition and Food Safety) included more than 60 leaders or professionals engaged in microorganism and chemical harmful factors, risk assessment. The two parties exchanged their knowledge during workshops and training sessions in Beijing concerning:

- benefit-risk and cost-benefit;
- chemical regulatory frameworks;
- community reference laboratory tasks;
- dose response modeling;
- quantitative risk assessment;
- intake assessment.

During the workshop, the implementation and experimental set-up of the RIVM *in vitro* digestion model for food were taught. Also the calculation of bioaccessibility and bioavailability was further explained. Support in choosing the most appropriate food samples for studying the bioaccessibility of arsenic in rice and seaweed and aflatoxin B1 in maize was provided by RIVM. Both China CDC and RIVM agreed to run *in vitro* digestions with arsenic contaminated rice and seaweed for assessment of the human health risk for the intake of these products. In consultation with the Netherlands Food and Consumer Product Safety Authority (responsible for the food safety in the Netherlands), it was decided to investigate rice and seaweed naturally contaminated with arsenic available on the Dutch market (to be performed in 2012). The maximum bioavailability and concentration information will be used for the intake assessment of arsenic for high rice consumers in the EU. The results of the RIVM digestion experiment will be compared with the China CDC results and the intake and risk assessment and possible implications for China will be discussed with the China CDC.

Transfer of knowledge on food safety, and more specifically the RIVM in vitro digestion model, was attained. The importance of the cooperation is beneficial to the protection of human health in both China and the EU. Furthermore, to enhance the safety of food and non-food products to be imported into the European (NL) market, but also for the food safety in China.

Benefits of this cooperation for RIVM:

- information on food safety issues in China is obtained which may also be relevant for the Netherlands either due to international trading or a specific food pattern in the Dutch Chinese population;
- international implementation of the in vitro digestion model developed by the RIVM;
- a more refined risk assessment for the EU/Dutch high rice consuming population by taking the bioavailability of different arsenic forms into account.

Expected results of future cooperation:

- validation of the RIVM in vitro digestion model for arsenic from food (bioaccessibility versus human internal exposure determined in urine);
- comparison of the arsenic intake in the Dutch Chinese population and the Chinese.

Participants to the Sino-Dutch Workshop on Food Safety Risk Assessment Beijing, 24-28 August 2009

Nutrition and Health

Counterpart for the cooperation on nutrition and health is the National Institute of Nutrition and Food Safety (NINFS), which is part of China CDC. At the kick-off meeting in November 2006 in Beijing agreement was achieved on a preliminary list of areas of cooperation on nutrition and health.
After a 4-day workshop in April 2007 at RIVM with experts from NINFS and a few working visits of NINFS experts on further elaboration of potential areas of cooperation, a large-scale Workshop on Nutrition and Health was organised in Beijing in January 2008. The NINFS experts involved were: Vice-Director Zhai Fengying and Research Fellows Yang Xiaoguang, Yang Yuexin, and Li Fengqin; Vice-Director Ma Guansheng and PhD Fellow Li Yanping.
Eighty people, mainly nutritional staff from provincial CDCs and professionals from NINFS, and eleven RIVM-experts (delegation leader Joop van Raaij) participated the Beijing workshop in 2008.

This 2008 workshop resulted in an assessment of the complementary value of each other's [NINFS and RIVM] approaches, methodologies, knowledge and expertise with respect to the potential fields of cooperation:

- dietary guidelines/nutrition policy;
- food composition table;
- nutrition and health claims;
- food consumption;
- food fortification;
- overweight and obesity;
- nutritional and physical activity interventions;
- non-communicable diseases;
- health loss/gain;
- risk benefit analysis.

Based upon a list of priorities, NINFS and RIVM made a planning of various activities, including training of staff and exchange of knowledge and experience. Unfortunately, in 2008 and 2009 for a number of reasons (i.e. earthquake, Olympic Games, food safety issues, lack of financial sources) our Chinese counterpart could not be given optimal attention on the intended cooperation issues.

Workshop in Beijing, 2008

In May 2010 two RIVM-experts (Wanda Bemelmans and Joop van Raaij) visited NINFS, and cooperation was revitalized by starting working together on two nutritional (and physical activity) interventions performed in China:

- the effectiveness and cost-effectiveness of nutritional education, nutrients supplementation, and the combination of nutritional education and nutrients supplementation in children under 2 years old in poor rural China (executed by the Department of Public Nutrition);
- the costs and cost-effectiveness of a school-based comprehensive intervention study on childhood obesity in China (executed by the Department of Student Nutrition).

In 2011 two Chinese experts (associate researcher Yu Dongmei and Assistant Research Fellow Meng Liping) stayed at RIVM for a three month period to work together with RIVM staff on analyses of the data of the two interventions, data interpretation and writing two articles (RIVM-staff as co-authors).

Europe but also, and in particular in China* appropriate nutritional and lifestyle interventions are urgently needed. Implementation of appropriate interventions and adequate nutrient profiling systems are crucial. Adequate food intake and nutritional status monitoring is required to assess effectiveness and health impact of interventions

* China National Plan for NCD Prevention and Treatment (2012-2015)" issued by the Ministry of Health and 14 other ministries and state administrations on May 8, 2012.

Benefits of this cooperation for RIVM consist of:

- monitoring methodologies on quantity and quality of daily diets has substantially strengthened RIVM expertise on food consumption surveys and food composition tables;
- methodologies on analysing and interpreting the enormous data sets on indicators of overweight and nutritional status have substantially strengthened RIVM expertise on dealing with large data sets and database;
- the type of information available and needed to quantify the health impact of various nutritional interventions has strengthened RIVM expertise on health impact assessment;
- how nutritional and lifestyle interventions are performed in Chinese settings have substantially strengthened RIVM expertise on effectiveness studies of interventions.

Expected results of future cooperation:

- improved RIVM models on assessing habitual intakes from food consumption survey data;
- adaptation of current nutrient profiling models (e.g. for comparison food logo's) to deal with a complex food system (as in China);
- adaptation of RIVM models to assess the health impact of various salt reduction strategies;
- improvement of cost inventory procedures and modelling techniques for assessing cost-effectiveness of nutrition and lifestyle interventions.

Health reporting and health system performance monitoring in China

During a visit to RIVM the Vice-Minister of the Ministry of Health Yin Li, expressed his interest in the Dutch experience with health system performance measurement.
As this project only started in mid 2011, it is still in a very early phase. RIVM has invested in monitoring instruments for health and health care for years. In this respect the Netherlands is an international leader in this field of expertise. The project aims to develop indicators that are relevant for China. The indicators to be used for monitoring will be the basis for a special Chinese monitoring instrument.

In June 2011, a seminar on health system performance assessment framework was hosted by the China National Health Research Development Center (CNHRDC) in Beijing. During this seminar representatives of RIVM, the Dutch MoH and representatives of the CNHRDC and the Chinese MoH exchanged ideas about monitoring health and health care performance. During the same week, RIVM researchers had meetings with researchers from CNHRDC and China CDC.

China is confronted by large public health problems and has asked the Dutch experts to support them through capacity building in the field of health system reporting.
The project offers a unique challenge for Dutch experts to cooperate with the Chinese counterparts and CNHRDC , because of the Chinese societal context in which the RIVM monitoring instruments can be applied.

Benefits of this cooperation for RIVM:

- the project has supported RIVM by improving the conceptual approach towards health system performance assessment;
- exchanging knowledge with Chinese counterparts was inspiring and helps to make our methods more widely applicable in other health contexts.

Expected results of future cooperation:

- the result of the project is a set of indicators for health and health care performance. Making a start with the development of a monitoring report may be the next step;
- the aim of the next workshop (Beijing) will be to disseminate the project results to policy makers and experts of relevant institutes resulting in absorption of these outcomes into locally relevant implementation processes.

Tobacco and health

A global tobacco testing laboratory network is crucial to improve tobacco control. Combining testing and research at the global level is a new approach to match the tobacco industry's expert product testing capabilities.

No such tobacco testing laboratory existed at China CDC before 2007. In 2007 in Beijing a meeting took place in which RIVM experts and CDC experts exchanged knowledge in developing methods for tobacco analysis and for the purpose of tobacco control.
This meeting supported CDC in establishing a 'tobacco control' laboratory. Moreover CDC became a partner of the TobLabNet. This network has been established for the study of tobacco products at the international level. It is also intended to initiate discussions on the guidelines needed for contents and emissions testing as described in Article 9 of the WHO Framework Convention on Tobacco Control (WHO FCTC). These guidelines include:

- the development of laboratory methods
- standards
- expertise
- capacity on tobacco products testing and research.

Since 2008 CDC has been a very active partner within the TobLabNet. It played an important role, especially during the negotiations concerning the WHO FCTC articles 9 and 10.
After establishing a tobacco laboratory in 2008, China CDC has since developed a second structural laboratory in this field.

Two concrete results can be mentioned:

- a tobacco laboratory was established at China CDC
- China CDC became a partner in TobLabNet

Future cooperation

In the first seven years of the cooperation between China and the Netherlands on public health, the initial focus has been on jointly recognized global public health threats. Viruses, anti-microbial resistant pathogens and multi-drug resistant TB are health threats which don't respect borders and remain of mutual concern for both countries and the rest of the world. Secondly, focus has been placed on safety issues related to the high proportion of Chinese products imported into the Netherlands and Europe in general. Thirdly, a shift has taken place with respect to the growing attention China is paying towards reforming the health system and the rise of NCDs, such as obesity.
A recent development has been the expansion of cooperation with other parties and stakeholders. The cooperation is no longer limited to the institutions of RIVM and CDC, but now also includes other institutions such as the China National Health Research Development Center for health system performance assessment, as well as direct cooperation with the relevant policy departments of the ministries, with respect to AMR and rehabilitation medicine.

Most of the above-mentioned projects are on-going activities, and all parties involved appreciate the cooperation. Many of these cooperation projects require long-term commitments to deepen understanding and improve outcomes.
The continuation of this cooperation is of mutual interest to the parties involved, as well as in the interest of both the Chinese and Dutch Ministries of Health. A well functioning reporting system to monitor the progress achieved is of great importance. Improvement of the reporting system by integrating it in the projects would be of mutual interest and will support the possibilities for all stakeholders to follow the progress of the projects.

It is of major importance for both China and the Netherlands to stay engaged in their efforts to tackle global health risks, and while doing so benefit from each others experiences and knowledge. Therefore, a well-focused public health cooperation remains of utmost importance.

The trustful atmosphere that has been created is a solid basis for continuing the fruitful cooperation for years to come and will contribute to a reduction in global health threats.
Exchanging knowledge that can be applied in models and interventions is of great value to both countries, today and in the near future.

‘Good cooperation contributes to good health’

Disclaimer:
The parts of this publication which concern projects carried out with other institutions than China CDC are not under the responsibility of China CDC.