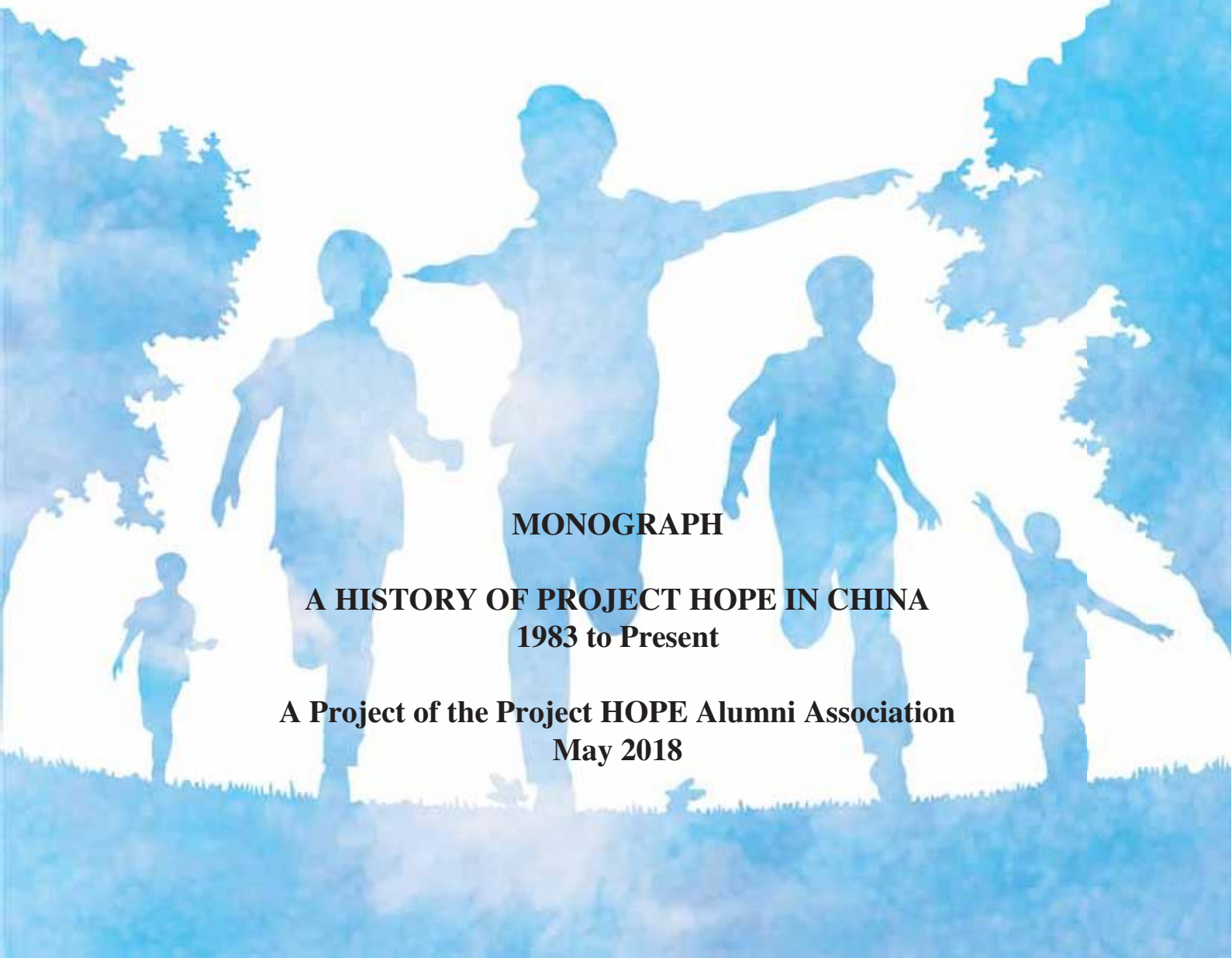
希望与初心

“Hope and the original sincere heart”



MONOGRAPH

A HISTORY OF PROJECT HOPE IN CHINA
1983 to Present

A Project of the Project HOPE Alumni Association
May 2018

TABLE OF CONTENTS

FORWARD

PROJECT HOPE PROGRAMS AND THE EVOLUTION OF US-CHINA RELATIONS

The health care system in China has made remarkable advances over the past few decades, and Project HOPE has been an important partner in these achievements. I had a wonderful opportunity to work with Project HOPE when I was the President of Shanghai Second Medical University in late 80's to start the Shanghai Children's Medical Center (SCMC) project with Shanghai Municipal Government. The project was the first mega international collaboration at that time in health care, and many challenges were solved through partnership, leadership support, and wisdom exchanges. Our mission was clear: to provide the best and first-rated pediatric tertiary hospital for China. It was a dream that both Dr. William Walsh and I shared dearly, so we were able to conquer obstacles together. Three key elements ensured the success of SCMC: true partnership and sincere collaboration, developing local talents in pediatric medicine, and carrying out the mission of Project HOPE – "Health Opportunity for People Everywhere."

The Shanghai Children's Medical Center is certainly among the most notable results of this long and enduring partnership – but as this Monograph makes clear, Project HOPE's work has had impact across the heath spectrum, and it has touched children and adults in every region of the country.

I know that, when Project HOPE embarked on its first programs in China some 35 years ago, it was in the spirit of friendship between peoples and countries, and collaboration among professionals who shared a commitment to the cause of advancing China's health care system. This respectful relationship became the foundation for all of the programs which Project HOPE and its Chinese counterparts have undertaken over the years.

Over the years, I was able to witness the impact of the collaboration with Project HOPE in China: long-term results and a gradual transition to full responsibility by its Chinese counterparts. It has achieved this by its dedication to the principle of "training the trainer," and by following an approach that involves and engages its partners – from the Ministries of Health and Education to professional health and medical associations to university faculty to hospital administrators and clinicians – in all phases of a program, from planning to implementation. SCMC, which in its 20 years has become a state-of-the-art treatment center and a model for successful children's hospitals around the world, is a shining example of how a commitment to respect and partnership can have a profound and lasting impact.

The effort to create SCMC has truly tested the essence of collaboration and cooperation among various parties engaged in the design, construction, operation, and management of SCMC. All relationships are tested over time, and the relationship between Project HOPE and the government

and institutions of China is no exception. We all approach problems from our own cultural vantage point, and as a result – even when we agree on goals and objectives – we often perceive different paths to reach the ultimate destination. But a good relationship can actually be strengthened by these differences, and we believe in this case that both sides have grown and learned and adapted by listening and by being open to new ideas.

As society progress, the Chinese health system is not the same system it was in 1983 – and Project HOPE is certainly not the same organization it was when Dr. Walsh signed those first, hopeful agreements with Zhejiang Medical University, Beijing Medical University, Shanghai Second Medical University and Xian Medical University. We all learn, we change with the times, we move forward.

This Monograph documents many of the programs in which Project HOPE has been involved in China over the past 35 years. It is not a scholarly assessment of the achievements, challenges, and lessons-learned. Its authors are largely storytellers, and the stories they have narrated here weave a tapestry of friendship, collaboration, mutual respect, and a commitment to change and progress. I am proud and honored to have been part of this story, and I look forward to many more years of dedicated work and accomplishment.

Wang Yi Fei, MD

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I. Introduction to HOPE in China History

The China Project HOPE partnerships in health now span 35 years. Through education and capacity building initiatives to improve China's health system, new models of health care delivery and health sciences education have been developed. The knowledge and skills of many thousands of Chinese health personnel have been upgraded, and health care for people throughout the country improved. And the lives and careers of countless "Hopies[1]" have been improved as a result of working with counterparts in this extraordinary country.

These partnership programs occurred during decades of major change in China and its health care system. That evolution is still underway. Under the banner of economic modernization, health care delivery and health policy were transformed to a more western style system, albeit with Chinese characteristics. HOPE education programs enabled its Chinese medical university partners to be among the first to apply the modernization principles, and to adjust direction as experience was gained and new health policies developed.

The HOPE approach in all countries begins with an in-depth assessment by HOPE experts of the setting that the host country partner desires to improve. Objectives and desired outcomes are defined, and a timeline and plan developed for their completion. Training and equipment assistance programs are organized to achieve the objectives. The head of the host country institution and department head agree to the approach, realizing that it can be adjusted as challenges arise.

A range of education methodologies are utilized. These include external fellowships, short-term and long-term training programs offered by "visiting "HOPE teachers in China and Internet-based instruction. The entire health team is trained – not just the physician. Associated administrative changes required for program success such as adding more staff, remodeling, and the development of new policies and protocols are also adopted as part of the agreed upon approach.

Whereas HOPE staff and preceptors providing training are experts, their nationality is universal. The China HOPE program began utilizing experts primarily from outstanding institutions in the U.S. As the programs evolved, and China's health system advanced, more and more of the experts came from other Asian countries and China.

This Monograph tells the story of many of China HOPE programs that have employed this partnership approach over the last 35 years. It is written more as a memoir than an academic paper, capturing the importance of personal relationships among the China and HOPE teams for presentation to the reader.

As the Table of Contents indicates, the Monograph begins with a general narrative on how the China HOPE partnerships began, and initial challenges faced. Its evolution, in the form of milestones and achievements follow. Chapters providing a detailed story of several programs follow. The final section is a brief overview of lessons learned that may benefit others involved in transnational ventures in China. The Appendix contains an illustrative list of HOPE team members, China counterparts and sponsors, and information on the contributing authors.

[1] This term was first coined in the 1960's by volunteers and staff of the SS HOPE who referred to themselves as Hopies, and who developed the expression, "Once a HOPIE, always a HOPIE."

The Beginning

In 1981, Project HOPE identified China as a potential international program location in its strategic planning process. China's adoption of an "open door" policies to the West and its focus on the modernization of its economy matched HOPE's track record of building health systems in developing and emerging country health care settings.

As fate would have it, two health care professors from China – Dr. Zheng Shu, an oncologist from Zhejiang Medical University (ZMU), and Dr. Li Shujun, a general surgeon from Beijing Medical University (BMU) – came to the United States on an exchange visit later that year. The HOPE campus headquarters in Millwood, Virginia was one of their stops.

"A journey of a thousand miles begins with a single step" (Confucius)

Dr. Li and Dr. Zheng Shu described the structure of their health system and its effectiveness in primary care and communicable disease control. They were optimistic that new modernization policies would come to the health sector in the form of new approaches to tertiary health care.

HOPE staff in turn described its history and approach to partnerships with developing countries. Particular emphasis was placed on recent experiences in Poland and countries in the Middle East, where tertiary care settings were improved by the addition of modern equipment and multidisciplinary training programs

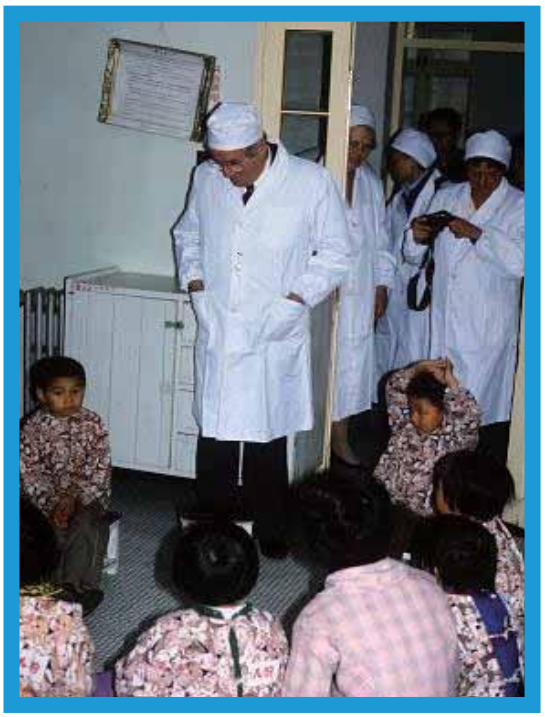
Dr. Li and Dr. Zheng were especially curious about HOPE's health science textbook donation program. Publishers donated to HOPE large quantities of medical textbooks and HOPE in turn distributed these books to developing countries. To their surprise, HOPE committed to donate 75,000 textbooks, providing that they could make arrangements for delivery and distribution once they reached China. It was further agreed that the gift of these books could pave the way for the exploration of a long-term education program between Project HOPE and the China Medical Universities.

The President of BMU, Dr. Ma Xu, and the President of ZMU, Dr. Wang Ji Wu, sent letters inviting Project HOPE to work in China. Both institutions shared the book donations with other medical universities and affiliated hospitals. New buildings or remodeled areas of existing structures were immediately constructed so that the future visits by HOPE representatives could include a celebration of the new libraries.

Dr. William B. Walsh, President and CEO of Project HOPE, led a survey team visit to China in April 1983. The team was composed of HOPE Headquarters staff and outstanding clinicians from Boston, Philadelphia and the University of Virginia's Children's Hospitals. Dr. Zheng Shu was a team member. In addition to ZMU and BMU, visits were made to Xian Medical University (XMU) and Shanghai Second Medical University (SSMU).

At each stop, the HOPE team toured hospitals and clinics, observing how health care was delivered and listening to presentations on the challenges in health care facing China. Even the most advanced

China hospitals were decades behind those in the United States. It was agreed that modernization of health services would be the overarching goal of a joint program. Centers of Excellence would be established. Those initially trained by HOPE experts on site and through fellowships to the United States would help train others. Consistent with the HOPE philosophy, the training would be multidisciplinary, including biomedical engineering and nursing as core components.



By October 1983, agreements were signed with ZMU, XMU, BMU and SSMU. It was agreed that a program at one university would be a pilot for all four. Representatives of HOPE and of each China University would meet annually at a "President's Meeting" chaired by the Ministry of Health. Progress reports and lessons learned on each program would be shared and exchange among the four university partners fostered as part of the collaboration.

Challenges

HOPE and its partner medical universities were excited to be among the first collaborations, as the United States and China embarked on a new era of cooperation and friendship. If successful, they realized, the China HOPE programs could become a model for others to follow. Initially, however, there were a number of significant challenges to address:

1. Bridging the Cultural Divide, the Language Barrier and Health System Differences

Neither side had worked in the other's culture, nor was there a large cadre of staff conversant in both Chinese and English. There was a chasm of differences between health systems ranging from technology levels to basic beliefs about illness and the role of various health institutions and personnel in delivering care.

HOPE addressed this divide based on its experience in the more than 40 nations it had served prior to working in China. HOPE had a core of professional administrative staff and affiliated experts from leading US health care entities with decades of experience in developing countries. Our Chinese partners were pragmatic about selecting areas of collaboration and were as open to trying new approaches as any country where HOPE previously worked. The medical universities immediately arranged for English language training for their staff and provided translators for meetings, teaching sessions, and the adaption of teaching materials.

Principals on both sides were always accessible to discuss cultural and other differences that had the potential to impact progress. Over time, both sides learned not only to respect those differences but to use elements of both western and Chinese problem-solving approaches to overcome barriers to progress.

2. *Finding Program Funders and Stakeholders*

Since collaboration between China and the United States was new, financing was an immediate challenge for both sides. HOPE persuaded a core of corporate leaders of the value in the new venture. As the program progressed, more multinational companies became interested. Contributions from individuals in the US could not be pursued. A wide scale appeal could even have negative consequences, due to the distrust that characterized US-China relations before President Nixon's historic visit to China and Deng Xao Ping's open-door policy.

China university partners also faced challenges financing their share of joint program expenses. They had limited access to hard currency. The Central Government decided that the health sector would not be a priority in the first stages of modernization of science and technology.

Regulations were enacted permitting Provincial Governments to support health sector modernization, should they wish. HOPE partners did a good job persuading their respective Provincial authorities to help. For example, ZMU received a significant hard currency loan from Zhejiang Province to remodel its facilities and was permitted to repay it in Yuan.

Though in the early years of the program, the Ministry of Health could not provide major funding, it played an important role. As goals were pursued, the Ministry linked applicable programs to its national agenda. It was an advocate for HOPE nursing education programs and health administration programs. Once the World Bank and other Development Banks entered China, the Ministry arranged loans from which some HOPE Partner Universities benefitted. Over time, the Ministry joined with various medical universities as a formal partner with Project HOPE in many programs

3. *Selection of Counterparts*

A major initial challenge was selecting the appropriate counterpart pool for HOPE program participation. Some physicians trained during the Cultural Revolution had limited education compared to those graduating in previous years. In 1983, all nursing and allied health staff were only technically trained – not an ideal preparation for the ambitious tertiary care objectives envisioned by China medical university leaders.

Practical steps were taken. The medical universities carefully selected participating departments and counterpart staff, knowing that the success of early efforts would lay the groundwork for the long-term. One such counterpart was Dr. Ding Wenxiang, a remarkably capable heart surgeon and biomedical engineer working at Xin Hua hospital in Shanghai. He built his own heart lung machine during the Cultural Revolution and switched to one provided by HOPE only when he was certain that he and his team were ready.

On the HOPE side, training programs for Chinese counterparts were designed to include basic sciences as well as clinical training. Nursing and allied health experts were included as trainers in all clinical programs. Because of the language barrier, HOPE staff were repetitive in their communications because even the best translators could not fully overcome the challenges of multiple dialects and the articulation of complex scientific principles for the various programs.

II. China-HOPE Partnership Phases and Milestones

It can be said that the portfolio of China HOPE Programs has occurred in distinct phases. As experience is gained working together and challenges are overcome, joint programs gradually increase in both scope and complexity. Below are brief narratives describing each phase, including highlights and milestones referencing specific programs.

Phase I
1983 to 1986
Proof of Concept

Three-year agreements are signed between HOPE and BMU, SSMU, XMU, and ZMU. The mutual goal is to improve health care through capacity training programs in China and external fellowships. The agreements stipulate that any equipment provided by HOPE will be imported duty free. The partner universities will provide housing to HOPE staff in China, while HOPE will provide accommodations to Fellows visiting the United States (November 1983).

Milestones

- *The China HOPE Collaboration Begins*

  Zhejiang Medical University remodels one of its teaching hospitals in preparation for creating a 12-bed modern neonatology unit. The collaboration is significant because it is the first such unit in China and because it shines a light on China's one-child policy.

> *"When the winds of change blow,*
> *some people build walls*
> *and others build windmills."*
> *(Chinese Proverb)*

- *The First Visiting HOPE Team Goes to Shanghai*

  A HOPE pediatric cardiovascular surgery team begins training programs at Chin Hua Hospital in Shanghai. Dr. Richard Jonas of Boston Children's Hospital heads the HOPE team. Dr. Ding, head of Pediatric Cardiovascular Surgery at Xin Hua Hospital is his counterpart. Their partnership and friendship is destined to last three decades.

- *Learning Resource Center Program Developed*

  Based on HOPE expert suggestions, Zhejiang Medical University remodels a building to include space for a Learning Resource Center for Health Sciences. The goal is to train faculty in new pedagogical, audiovisual, and computer enhanced approaches to health

sciences education. Fellowship exchange programs begin with the University of Arizona, UCLA, and University of North Carolina health sciences centers.

- *HOPE's First Nursing Education Begins at Xian Medical University*

Visiting HOPE nurse educators develop a Teacher Preparation Program through a newly established Division of Nursing. A 20-month course is developed for the future faculty of a bachelor's degree school of nursing – among the first to be established in China. The Ministry of Health announces its intent to establish bachelor's degree programs in each province by 1989.

- *Clinical Nurse Training Programs Initiated*

HOPE begins a 35-year commitment to improving nursing in clinical settings throughout China. All HOPE tertiary care and primary care programs include the training of professional and technical nursing staff.

- *Programs in Maxillofacial Surgery and Preventive Dentistry Begin*

Exchange programs between the University of Oregon, the Harvard School of Dental Medicine, and People's Hospital #9 in Shanghai are established. Over time, these programs expand to multiple provinces and improve the health of thousands of children.

- *Adult Heart Surgery Consulting at BMU and ZMU Teaching Hospitals Begins*

Teams from Massachusetts General Hospital advise the respective universities on next steps as their key staff return from fellowships in other countries (1983).

- *Biomedical Engineering Education Emphasized*

A biomedical engineering component is developed with SSMU and ZMU as a building block to modernization of health care. Engineer and technicians are retrained to meet the unique needs of advanced health care settings in affiliated teaching hospitals of BMU and ZMU. HOPE's first program director is a Biomedical Engineer.

- *Hangzhou Becomes HOPE's First Headquarters in China*

It is decided that the serene environment of Hangzhou is the best place for HOPE's first headquarters in China. Dr. Zheng Shu becomes the President of the Medical University. She and others on the ZMU team mentor visiting and resident HOPE staff on the basics of living and working in China.

- *The First "President's Meeting" Takes Place at Xian Medical University*

Under the auspices of the Ministry of Health, representatives of Project HOPE and the four partner universities meet annually to discuss progress and lessons. Because exchanges

between these universities are infrequent, the annual meeting is especially enjoyable for China partners (1986).

Phase I of the China HOPE collaboration came to an end in 1986. Significant challenges had been addressed. All programs were making sufficient progress. The levels of friendship and trust between China and HOPE counterparts were as extraordinary as any program HOPE had undertaken. There was determination adjusting to differences in tradition, housing, grocery stores, food, and car/bicycle rush hour traffic in our respective countries and cultures. The similarities in the senses of humor among Chinese and HOPE staff was a welcome surprise.

Phase II
1986 to 1990
Program Strategies Adjus

Agreements with the four original partners universities are all extended. Some programs require additional resources. Others warrant additional investment to expand their impact. HOPE provides assistance and, in order to accelerate progress, increases the number of professional staff residing in China. A principal challenge is joint decision-making about when achievements are sustainable without continuing HOPE assistance (1987).

Milestones

- *Health Services Management Added at Xian Medical University (XMU)*

  The Ministry, XMU, and HOPE develop a joint master's degree program in health administration with the University of Alabama School of Health Care Management. Students study two years in Xian and one year in Alabama. The curriculum is developed by a Howard W. Houser, Professor of Health Administration at Alabama, who resides and teaches in Xian along with other visiting faculty. As modernization of health care proceeds nationwide, new approaches to management will be required.

- *XMU Nursing Teacher Preparation Program (TPP) Becomes a National Program*

  BMU and HOPE offer an adaption of NIPP to faculty at new bachelor's degree programs throughout China. Among the graduates are several faculty at the newly established Bachelor of Nursing program at ZMU. It is the first step in the transformation of China HOPE nursing programs to a nationwide effort.

- *Beijing Medical University Establishes the first Nursing Master's Degree Program in China*

  Marcia Petrini, Ph.D., HOPE resident nurse educator based in Beijing, plays a key role in developing the curriculum, beginning a long period of personal involvement that continues today. Her drive and dedication become a symbol of HOPE's commitment to the advancement of nursing practice and nursing education in provinces throughout China.

- *The China Nursing Association (CNA) and Project HOPE Form Alliance*

Over a five-year period, CNA and HOPE conduct continuing education programs for nursing personnel in seven different provinces. This training is especially important from a team building perspective as new bachelor's degree graduates join technically prepared nursing staff in health facilities nationwide (1987-1992).

- *Shanghai Community Dentistry Program Extended to West China Medical University*

The joint program in community dentistry started by SSMU and Project HOPE at People's #9 Hospital in Shanghai continues. It is now being implemented at several sites throughout Shanghai and is extended to West China University in Chengdu. Through clinics supported by university training programs and under the leadership and efforts of Dr. Leon Dogon from Harvard Dental School, fluoride drops and fluoride releasing sealants are provided to thousands of primary and middle school children (1989-1996).

- *Community Medical Education Program Addresses Physician Distribution Issues*

A new HOPE initiative begins, based on the China's community health development strategy. China's Ministry of Public Health estimates that the number of doctors in China will have to almost double in order to meet the Alma Ata declared goal of "Health for All by the Year 2000." The Ministry of Public Health gives high priority to health professions development for rural areas. Xian Medical University, the Ministry of Health, the World Health Organization, and HOPE partner with the University of New Mexico (UNM) School of Medicine to develop a new curriculum for the preparation of three-year physicians for rural areas of Shannxi Province. Residents from these areas are recruited as students. Two rural three-year medical schools in Southern Shaanxi Province, in Hanzhung and Ankang, are selected for the program, which is led by Dr. Arthur Kaufman, Professor of Family and Community Medicine of UNM. The curriculum features teaching and clinical experiences in health facilities serving rural areas. Each year, 60 students enroll in the program. Impressed with the program's progress, XMU President Dr. Ren Huimin establishes three additional CME sites beyond Hanzhong and Ankang in Shanguo, Tongchuan and Baoji counties. All students graduate with associate degrees in rural medicine, providing primary care at the county and community health level. XMU faculty assist the three-year faculty in the new decentralized approach, modeled after a similar approach used in New Mexico. Project HOPE sponsors the program from l989-2000, when the China Medical Board assumes responsibility, following the same direction in rural medical education.

- *ZMU/HOPE Learning Resources Center Declared a National Model*

In making a loan to seven key medical universities for the development of learning resource centers, the World Bank and the Ministry of Health stipulates that the ZMU Center is among the most advanced in China. Faculty from the key universities visit ZMU to acquire lessons learned from their now six-year experience (1988).

- *Joint Masters in Health Care Administration Awarded at XMU*

  The first 13 graduate students complete the Xian Medical University /University of Alabama master's degree program, a first in China. They are assigned to hospital and Ministry of Public Health posts. Their course work includes two years of study in Xian and one year at the University of Alabama. In both locations, class work is accompanied by field work, putting management principals into practice. A curriculum is in place for future efforts (1989).

- *BMU's Coronary Care Unit Development Program Turned Over to Chinese Responsibility*

  After six years of physician and nursing exchange programs and equipment donations, the Coronary Care Intensive Care Unit program becomes the first HOPE effort to transfer to Chinese responsibility. Efforts with ZMU are also completed (1989).

- *Perinatal Outreach Established in Zhejiang Province*

  Building on lessons learned in the ZMU/HOPE hospital-based neonatology unit, the Zhejiang Bureau of Public Health, ZMU, and Project HOPE initiate a perinatal care program to train medical and nursing personnel throughout Zhejiang Province. By elevating levels of perinatal care delivered throughout the province, the goal of reducing infant mortality rates is further served (1989).

- *Transfer of Learning Resource Center Program Completed at ZMU*

  The Model Learning Resource Center Program at ZMU is phased over to Chinese responsibility. Duplication, production, and software capabilities are in place at the Center. Its utilization is directed by the various health science faculties and the policies of the University President. A roadmap for further growth is provided by HOPE advisors from the University of Arizona and UCLA, who have worked in the program since its inception in 1983.

- *HOPE Assists ZMU Teaching Hospital Expansion of Trauma Services*

  HOPE provides experts from Massachusetts General Hospital to develop a major expansion plan for the emergency and surgical services areas in ZMU teaching hospitals. The expansion is financed through a World Bank loan. Over several subsequent years, an annual national conference is held at Zhejiang, reviewing worldwide innovations in emergency medicine. Former HOPE volunteers are frequent participants (1990).

- *Children's Hospital Planned (1988-1989)*

  As Phase II comes to an end, HOPE, SSMU, and SSMU-affiliated teaching facility Xin Hua Hospital explore the possibility of developing a state-of-the-art children's hospital. It makes sense because lessons learned from all previous programs in China could be put to good use, and thousands of children would benefit annually. Resource requirements would be

substantial. The complexity of such an effort would require far more leadership attention from both sides than joint programs pursued to date. A working dinner among Municipal officials, SSMU, William B. Walsh MD, and Mr. William Walsh is the final step in feasibility discussions. Through a serious of meetings, elements for a joint plan are identified and general agreement on responsibilities are deemed possible. All are honored by the presence of Jiang Zemin, former Mayor of Shanghai (later to be elected Chairman of the Communist Party of China), who is in Shanghai for other meetings. Dr. Walsh informs him of progress over the previous few days. All adjourn to an adjacent room for further discussions. Once all are seated, several gentlemen enter the room carrying TV cameras. Secretary Jiang Zemin announces on national television his vision for a new state-of-the-art children's hospital to be developed by the Municipality of Shanghai and Project HOPE.

Phase III
1991 to 1998
Fulfilling the Visio

After the announcement of a new state-of-the-art children's hospital in Shanghai, SSMU, Xin Hua Hospital, and Project HOPE take steps to develop an agreement, a plan to fulfill their respective responsibilities, and a combined organization to monitor progress. An 18-month period is required. Given the enormity of the challenges inherent in SCMC's creation, HOPE decides to complete as soon as possible its collaborative programs unrelated to the new hospital. Because construction will not begin until 1995, the phase over of the various programs to Chinese responsibility is gradual and advances achieved by mutual efforts prove sustainable.

As instructed by its Board of Directors, HOPE undertakes a feasibility analysis, which concludes that HOPE can provide about 20 million dollars in medical equipment and can provide training for its future staff utilizing its health professional networks at several leading US institutions. Preliminary talks with leading medical device companies take place. The Board authorizes HOPE's management with the Shanghai Municipality, providing it assume responsibility for the acquisition of land, construction, and remaining equipment costs. SSMU and the Municipality are also challenged by the prospects of the SCMC project. They too have many other projects to address as Shanghai races towards becoming a renowned commercial and intellectual center.

HOPE moves its China headquarters to Shanghai after many delightful and productive years in Hangzhou.

Milestones

- *National Nursing Education Programs Extended*

  Collaboration with the Ministry of Health, medical universities, and the China Nursing Association proceed. Bachelor's and Master's degree nursing faculty receive continuing education, as do nursing staff in both hospital and community health facilities in several provinces (1990-1995).

- *Municipality of Shanghai Leaders Select Pudong District as the Future Location of SCMC*

  A joint team composed of HOPE and municipal representatives survey a number of options for the location of the new hospital in Shanghai. Shanghai Party Secretary Jiang Zemin and Mayor Zhu select the Pudong District – a large, undeveloped area, distant from the city center. A total of 100 acres in the newly developed Pudong district of Shanghai is allocated to the future medical center.

- *SCMC Agreement is Signed*

  The agreement between the Municipality of Shanghai, SSMU, the Pudong District, and Project HOPE is signed. The design of the hospital is a joint responsibility to be shouldered by Shanghai firms and HOPE.

- *Groundbreaking Ceremony for SCMC*

  A groundbreaking ceremony takes place in Pudong, attended by municipal officials, SSMU, and members of HOPE's Board of Directors and staff (1992). As Ms. Zhou Qiuqing, the structural engineering and Shanghai Municipality Institute of Architecture and Design (SMICAD) team leader for the project, later says, it is time for the Shanghai and HOPE teams to "ride the tiger."

- *HOPE Changes Leadership*

  Charles Sanders MD becomes Chairman of HOPE's Board of Directors in 1991 and William B. Walsh, Jr., MPH is appointed President in 1991 and CEO in 1992. Mr. Walsh replaces HOPE's founder Dr. William B. Walsh who retires for health reasons. Dr. Sanders and Mr. Walsh affirms SCMC as HOPE's #1 global health priority (1992). The collaboration to build SCMC continues, along with efforts to allocate resource.

- *New Resource Development Strategies Developed*

  The combined cost of SCMC will ultimately be more than 90 million dollars. To meet this challenge, HOPE develops new offices in Asia to target a broad array of Asia-based businesses as sponsors. SSMU seeks municipal support as well as help from the central

government for its share. With Shanghai and China booming, competition from other projects is formidable.

- *Training Network Developed for SCMC*

A Senior Technical Advisory Group (SENTAG) is organized to oversee training of the future staff of SCMC. The SENTAG is composed of experts from several leading children's hospitals in the United States, HOPE health professional staff, and a leadership team of SSMU and Xin Hua Hospital. Training programs for future SCMC staff begin even before an agreement to develop the hospital is in place.

- *Architectural and Construction Teams Chosen*

SCMC selects the Shanghai Municipality Institute of Architecture and Design (SMICAD), and HOPE selects Neramore Bain, Brady and Johnson (NBBJ). SSMU will oversee the architectural and construction process based on the collective inputs of these firms (1992).

- *Construction Begins: SCMC Named a Priority Project in the China 5-Year Plan*

These events are extremely helpful to HOPE resource development efforts. They lend certainty to HOPE's value proposition that the hospital will be developed. As construction proceeds, the enthusiasm of current and prospective donors can be cultivated, especially those being asked to underwrite HOPE's multimillion dollar equipment obligation (1995).

- *Ministry of Health and Project HOPE initiate partnership to address diabetes in China*

Under the leadership of then-Minister of Health Dr. Chen Ming Zhang, a national program to train health professionals in the delivery of diabetes-related health services, as well as to educate families of diabetic patients, is launched (1996). The program is the first to be supported equally by three corporate sponsors – Becton Dickinson (BD), Eli Lilly & Company, and Boehringer Mannheim (later acquired by Roche, which assumes the company's funding obligation). Consistent with HOPE's philosophy, the training programs are multi-disciplinary, involving physician, nursing, dietetic, and social service personnel. Minister Chen advises that this was among the first national initiatives to address chronic disease in China.

- *Health Manpower Training for SCMC Intensifies*

With the end of SCMC construction projected for 1998, training programs for its future key staff intensify. Nursing and allied health staff benefit from "Greater China" based efforts, while future SCMC physician staff continue to participate in external fellowships hosted by HOPE preceptors based in leading children's hospitals (1997).

- *1998: Advanced Equipment from HOPE for SCMC Installed*

Nearly 32 million dollars in advanced medical equipment is installed by company biomedical engineers and technicians and China staff. Among participating HOPE donor

companies are GE, 3M, Hewlett Packard, Steris, Johnson & Johnson, the USAID American School and Hospital Abroad program, overseas Chinese, and many others. The commitment substantially exceeds what HOPE promised and is attributable to donor confidence that SCMC will indeed become China's first state-of-the-art children's hospital.

- *SCMC Outpatient Department Opens*

On June 1, 1998, a day coinciding with International Children's day, SCMC begins providing service to the children of China and their families. SCMC also organizes a pediatric health consultation fair to celebrate the occasion. Thousands of people line up at the front door to visit the new modern hospital. The grand opening of SCMC – once named as the US-Sino Children's Hospital – symbolizes an important landmark of US-China collaboration. While the hospital is completing individual departments, final equipment and construction efforts are ongoing, so other areas of the hospital can open.

- *June 1, 1998: SCMC Inaugurated*

In remarks at the inauguration ceremony, Madame Zuo Huancheng, Vice Mayor of Shanghai, and Hillary Rodham Clinton, First Lady of the United States, celebrate the international collaboration that made SCMC possible, and its purpose of serving children throughout China.

- *Project HOPE **Health Affairs** Journal Reports on SCMC Opening*

Through a Publisher's Letter, news of the opening of SCMC is shared with the journal's readership of several thousand members of the health policy community in the United States and worldwide.

- *HOPE Continues Training SCMC Staff*

Dr. Frieda Law, HOPE Medical Director in Shanghai, continues to coordinate onsite training programs in Shanghai and external fellowship efforts. As of 1999, more than 200 of SCMC's key staff have received training through Project HOPE. Boston Children's Hospital, Philadelphia Children's Hospital, Wisconsin Children's Hospital, Seattle Children's Hospital, National Children's Hospital of Washington DC, Schneider Children's Hospital of Israel, and St. Jude Children's Research Hospital are among the leading training facilities to host Chinese health care providers for clinical training. The legacy of partnership with many of these hospitals continues today, promoting the advancement of pediatric medicine in China. Additionally, SCMC becomes the first hospital in China to have a fundraising department.

Phase IV
2000 to 2018
Sustaining a Legacy

SCMC shines a bright light on HOPE's work in China, which began with a few exchange programs. The challenge is to sustain the legacy of noteworthy accomplishment through new ventures and to preserve the underlying spirit of partnership and friendship that has characterized China HOPE efforts from the beginning.

Three "platforms" are chosen for HOPE's future efforts in China. One is continuing collaboration with SCMC, as its vision as a national referral, training, and research center is implemented. The second is the extension of the National Diabetes Education Program as a model for training programs addressing other chronic diseases affecting both adults and children. A third priority is a continuing dedication to the emergence of nursing as a profession. As always, other needs can be pursued as opportunities may arise.

Milestones

- *National Diabetes Education Program Extended*

  The Ministry of Health/HOPE cooperative program begun in 1996 by Minister of Health Chen Mingzhan is extended. It provides training for doctors, nursing staff, and dietitians, as well as counseling to families in a number of cities and provinces. The influence of the program continues today, with Project HOPE maintaining its leadership role in addressing diabetes care from the tertiary hospital to the community health care center, and assisting China to develop the role of diabetes educator and nursing specialist to enhance diabetes care for China (1996-2018).

- *Wuhan University and Project HOPE Co-Found the Wuhan HOPE School of Nursing*

  Through the generous contributions of HOPE supporter Dr. C. J. Huang, a multiyear effort is launched to make the Wuhan Nursing School a leading program in China and beyond. Onsite training programs for faculty and preceptors in clinical settings are provided, as are a large number of external fellowship experiences at internationally recognized nursing schools. The program is directed by HOPE educator Marcia Petrini Ph.D., who is honored by her selection as the Dean of the new school. Ms. Petrini has dedicated more than 15 years of her life to the advancement of nursing in China (2002-2018). Project HOPE nurse educator Lily Hsu and Hong Xu, along with several nursing volunteers from the U.S., are key to facilitating that early stage of the nursing education reform. The BSN program is changed from five years to four by adapting the U.S. curriculum, and the Master of Science of Nursing program is successfully established by Project HOPE educators.

- *Community Dentistry Program Completed*

  The Community Dentistry program originally established with People's Hospital #9 and the Municipality of Shanghai and expanded to the medical universities of Chengdu and Wuhan, is phased over to Chinese responsibility. Thousands of children have been served and many Chinese dental personnel have been trained to continue the program in the respective provinces. Dr. Leon Dogan of the Harvard Dental School, who originated the effort,

documents its methodologies and results through several papers developed jointly with Chinese counterparts.

- *Healthy Heart Education Program Provides Multidisciplinary Training*

With the sponsorship of Medtronic, a series of workshops acquaint providers with the most up-to-date approaches on the prevention and management of heart disease. Multidisciplinary staff from both primary and tertiary care facilities participate (2002-2005).

- *Health Care Management Training Course Offered at SSMU*

Through the support of Merck/MSD (China Ltd.), a management training course is provided for executive and middle management staff at SCMC and other affiliated teaching hospitals of SSMU, now Shanghai Jiao Tong University. Faculty include Shen Xiaoming, President of SCMC; Professors Zhijun Zhou from Peking Medical University and Dr. Li Guohong from SSMU. HOPE team members include William Pieraskalla PhD, former Dean of the UCLA School of Business, and Arnie Kaluzny PhD, former Chairman of the University of School of Public Health PhD Program in Health Care Management who coordinate the program. It is adapted from HOPE health care management executive training programs carried out in Central Europe starting in the 1990s as the newly independent states were changing their political systems.

A participant in the China program, Huang Oiming (an economist and former Party Secretary of BaoGang Hospital of the Shanghai Jiao Tong University School of Medicine) commented in an interview with HOPE's Shanghai Office Director, Lily Hsu, that the program presented "systematic management training in modern hospital management, beneficial to a wide range of executive and administrative staff." He stated that a fuller understanding of management principles will be especially important to hospital leaders, party officials, and managers in China as new reforms addressing the economics and value of the rapid expansion of hospitals in China are introduced by the Ministry of Health.

- *Antiviral Therapy Program for HIV Piloted in Hubei Province*

Project HOPE experts from the University of Chicago help the Ministry of Health and Hubei provincial authorities develop protocols for managing the urgent and rapid increase in HIV cases. Several thousand health care workers are trained over a three-year period. This is among the first efforts of its kind in China. It receives worldwide attention through an article published in *Health Affairs* (2005-2008).

- *SCMC Capacity Expands, Staff Achievements Recognized*

A new 152-bed tower dedicated to the treatment and research of pediatric cardiovascular disease is constructed and opened. The addition expands the capacity of the hospital from its original 250 to 450 beds, to accomplish about 3,000 open-heart surgeries annually at

SCMC (2007). HOPE donates more than 1.6 million dollars of medical equipment through a grant from USAID. As the hospital expands, SCMC Social Worker Dr. Ji Quingying is named one of top ten social workers in China.

- *Abbott Fund Institute of Nutrition Science (AFINS) Established by HOPE at SCMC*

A new child nutrition program signifies an important stage of providing holistic and multidisciplinary care for critically ill children, especially given that pediatric clinical nutrition is in the infancy stage of development. The program provides assistance in the care of SCMC patients whose conditions are compromised by nutritional problems. As staff training progresses and experience is gained, the Institute provides outreach to seven other children's hospitals in China to adopt the program's pediatric clinical nutrition practice standard and assessment. Based on its China experience, an AFINS program is also established in Viet Nam (2007-2014).

- *Ministry of Health and HOPE Provide Disaster Assistance, Emphasizing Post-Earthquake Rehabilitation Service*

HOPE and the Ministry of Health provide urgently needed supplies, equipment and services to Sichuan Province when it is struck by an 8.0 scale earthquake in 2008. Project HOPE initiates a rehabilitation medicine training program in Dujiangyan city of Sichuan Province and in Gansu Province, working closely with Ministry of Health International Cooperation Division and Peking University #3 Hospital's Rehabilitation Medicine Department. A new 20-bed rehabilitation unit is established at Dujiangyan People's Hospital, and local health care professional capacity is greatly enhanced by training, rehabilitation skills demonstration, and equipment donation. As the emergency response phase ends, areas of health services are upgraded so that they may better care for those who suffered disabling injuries (2008, 2013).

- *The "Total Cycle of Care" Program and New Diabetes Initiatives are Launched*

Workshops on best practices in the prevention, diagnosis, treatment and management of multiple diseases, including coronary artery disease, stroke, and Chronic Obstructive Pulmonary Disease are provided in several cities. In accordance with new Ministry of Health policies, Project HOPE extends the best chronic disease practice education program from tertiary hospitals to primary care and community settings by knowledge and standard of practice dissemination and fellowships. Home care with rehabilitation service for patients with stroke is established in pilot districts of Shanghai, with the support of Shanghai Hua Shan Hospital. In addition, a new diabetes care program is initiated to address community care capacity and to strengthen diabetes care in China (2007-2013).

- *Articles in **Health Affairs** Discuss the Transformation of China's Health System*

Since the initial article reporting on the development of SCMC in 1998, an increasing number of papers in Health Affairs have addressed health policies and challenges in China. A variety of topics are covered – including health insurance; pharmaceutical pricing; and allocation and policy decisions affecting outcomes in primary, secondary, and tertiary care

settings – comparing China policies to western nations and other emerging countries. As of 2018, more than 25 articles have covered an array of key policy topics.

- *Completion of the Hematology Oncology Tower at SCMC*

In 2010, a new 147-bed hematology oncology center, with a national laboratory for pediatric oncology and a 10-bed inpatient bone marrow transplantation unit, is completed – signifying another important development landmark for SCMC. Project HOPE initiates a three-year cancer support program with funding from the Hospira Foundation. This program enables the further development of medical social workers, hematology oncology nursing education, pediatric palliative care, clinical research, and health professional training for pain management. The program addresses the emerging area of pediatric palliative care in health service, developing a talented and committed group of nurses from 40 hospitals nationwide to facilitate the standard of care in pediatric hematology oncology. Subsequently, a major research publication, led by SCMC oncology research team and HOPE fellows Dr. Li Benshang and Dr. Zhou Binbing, to address pediatric leukemia relapse therapy is published in Natural Medicine (2015), further enhancing the leading role of SCMC in pediatric cancer research. HOPE donates more than 1.4 million dollars worth of equipment through grants from USAID.

- *New International Collaborations at SCMC Improve Patient Care*

In 2010, two important collaborations are formalized by SCMC. First, a collaboration with the Basrah Children's Hospital in Iraq (a project of HOPE and the U.S. government) creates the standard of care for children with congenital heart disease (CHD), allowing SCMC to form a national CHD treatment standard. Second, a new collaboration with longtime partner St. Jude Medical Center helps make advanced cancer protocols available for China and promote the cancer treatment standard and training. Through the St. Jude International Outreach program, many SCMC clinicians, nurses, social workers, laboratory technicians are receiving advanced training at St. Jude. The relationship also provides equipment (first flowcytometer for tumor residual examination) to advance SCMC's cancer diagnosis capacity. The St. Jude collaboration, facilitated by Project HOPE, enables SCMC to form an acute leukemia treatment protocol in 2010 for adoption by the nation's Farmer Corporate Insurance. This protocol changes the landscape of leukemia treatment for children and makes treatment accessible and affordable for children with leukemia in China. St. Jude experts Dr. Ching-Hong Pui (Head of Hematology) and Dr. Raul Ribeiro (Head of International Outreach) are deeply involved in discussions and training, along with HOPE medical and nursing educators.

- *Pediatric Epilepsy Program "Rainbow Bridge" Developed*

A four-year "Rainbow Bridge" Hope and Care for Children with Epilepsy program (January 2013-December 2016) is developed to address gaps and challenges in epilepsy treatment and care. The first HOPE initiative of its kind specifically addressing pediatric epilepsy, the program offers health professional training, family support, children's social activity, and training of school teachers regarding in responding to epileptic episodes in school. It is

carried out in 14 provinces and utilizes China national pediatric neurologists as expert trainers. To date, the program has reached some 1,600 pediatric health care providers from 28 provinces to strengthen the epilepsy diagnosis and treatment and has also benefited more than 1500 parents. Project staff also initiate a "Rainbow Weekend" to enhance family social support and alleviate stress associated with pediatric epilepsy treatment. In 2017, the program is extended for an additional three years (2013-2020).

- *China Alliance for the Prevention and Treatment of Respiratory Disease (CARD) Begins*

A new national initiative addressing the prevention and management of respiratory diseases, especially chronic obstructive lung disease and asthma, is created in cooperation with the China Medical Association Society of Respiratory Medicine, AstraZeneca and Project HOPE. Through online education and face-to-face workshops, respiratory treatment related equipment donation, and lung function screening, thousands of health care personnel are educated on best practices in the prevention, detection, and treatment of respiratory disease in both children and adults. Noteworthy is the focus on community and primary care services and the provision of equipment to detect respiratory conditions. This initiative is a finalist in the health care innovation field in the Shanghai American Chamber of Commerce's annual program for excellence worldwide in wellness programs (2015-present). In addition, the pediatric asthma component of the program has drawn attention from health care providers and policymakers. It continues to serve as a model of care to demonstrate the efficiency of decentralizing asthma care from the tertiary hospital to the primary health system.

- *SCMC Capacity Expands*

Through the construction of a new oncology tower, SCMC further expands its capacity to a 640-bed facility. A new comprehensive patient care tower, now under construction and scheduled to open in 2019, will further expand capacity to 1,000 beds. The planned tower will upgrade the neonatal ICU, operation rooms, and outpatient department to accommodate 5,000 visits daily. A clinical simulation education center and translational research center are two key features of the new patient care facility. HOPE has contributed equipment in support of the new facilities. On an annual basis, SCMC is now admitting and providing services to more than 25,000 children and is recognized as one of three national children's hospitals in China (2014-2017). An important milestone is the selection of SCMC by the Health and Family Planning Committee, in December 2017, as the National Children's Medical Center (NCMC). Further development of SCMC will include the mission of NCMC in training, medical service and research.

- *AstraZeneca joins BD, Eli Lilly, and Roche in support of diabetes education programs*

  Programs continue today throughout China, informing thousands of Chinese health personnel on the worldwide evolution of health policy and health services delivery practices in the prevention, detection, and treatment of diabetes. It is the longest running international program ever developed by Project HOPE. Its continuing impact is due to the generosity of its sponsors and the longstanding dedication of China partners and HOPE experts to its objectives.

- *New Project HOPE Leadership*

  In 2015, new HOPE President and CEO Dr. Thomas Kenyon is named by the Board of Directors and is introduced to HOPE's partners and collaborators in China and around the world. New directions for HOPE's ventures in China are explored.

- *Wuhan Medical University, and Shanghai Jia Tong University School of Medicine sign agreements with Project HOPE (2015, 2017)*

  These two agreements assure the continuation of China HOPE partnership programs at least through 2020. The Jia Tong (former Shanghai Second Medical University) partnership began in 1983. Other HOPE Medical University partners have included Xian Medical University, Zhejiang Medical University, Beijing Medical University, and Chengdu Medical University (later West China University). HOPE also has had formal agreements, for implementation of specific initiatives, with the China Nursing Association, the China Cancer Foundation, Kunming Children's Hospital, Guangxi Medical School, Liuyang General Hospital, and other institutions.

  For a more complete listing of HOPE's institutional partners in China, see the appendix.

- *HOPE Formally Recognized as NGO in China*

  Project HOPE becomes one of the first international nonprofit organizations in China to be registered by the government of China under new national registration laws (2017).

- *China and HOPE Partners Celebrate 35 Years of Collaboration*

  The Ministry of Health, representatives from several provinces and universities where HOPE has worked, and HOPE representatives celebrate. Together, HOPE and its China partners have trained tens of thousands of Chinese health personnel and have established clinical centers of excellence and model health sciences education programs throughout China.

III. INDIVIDUAL INITIATIVES

A. Nationwide Nursing Education Programs

Primary Author: Carolyn Kruger
Contributors: Dorothy Aeschliman, Lily Hsu, Nancy Savage, Sharon Redding, Marcia Petrini

Introduction

The profession of nursing was substantially advanced by Project HOPE's involvement in nursing education in the 1980s. At the time, nursing education was primarily at the secondary level-students entered nursing after primary school. Baccalaureate nursing education was introduced in China in 1929. These universities programs prepared nurses until 1949 when basic programs were downgraded, and baccalaureate education programs ceased during the Great Proletarian Cultural Revolution or MAO political leadership - creating a 30-year gap in nursing education and a decrease in the nursing profession to that of vocational training with poor role models. Nurses during this time were over worked, and experienced poor pay, poor management practices, low status, low education, poor career opportunities as well as negative cultural attitudes. In 1983 many of the China nurses who had been educated in universities prior to 1949 recognized the need to re-open the baccalaureate nursing programs but there was an acute need for faculty prepared to teach in these programs. The Ministry of Health asked HOPE to assist in the preparation of nurses to teach at the University level. It was the beginning of remarkable effort by HOPE and Chinese counterparts to lead the development of baccalaureate, masters, and doctoral degree programs and continuing education programs for thousands of nurses throughout China.

> *"If you are planning for a year, sow rice;*
> *if you are planning for a decade, plant trees;*
> *if you are planning for a lifetime, educate people."*
> *(Chinese Proverb)*

Status of Nursing Practice

At the time of Project HOPEs entry into China in 1983, there was a shortage of nurses in China due to the closing of nursing schools during the Cultural Revolution. There were many problems facing nursing at that time primarily physician dominance, low esteem of nurses held by the public, and low level of nursing education.

The hospital was the primary practice setting and was organized along medical specialties. Nurses were expected to run a well-organized unit, follow physician's order, and assume-non-nursing functions such as housekeeping chores. Management and administrative abilities remain underdeveloped. There was minimal discharge planning or patient education. Long-term care and care of the elderly were recognized as important but home care, public health, occupational health and psychiatric mental health were not nursing concerns despite an average patient stay of 27 days

and lack of intermediate or long-term facilities. Nurses were employed primarily in hospitals while "barefoot doctors" provided primary care in the communities. There were no community-based public health nurses. The art, science and practice of nursing as known in the US was not understood by the Chinese.

Status of Nursing Schools

Nursing Schools were attached to medical colleges or hospitals, were apprentice in nature- about 30-36 months long, and enrolled mainly middle school and high school graduates. The curriculum was organized along body systems, basic procedures and medical specialties, taught mainly by physicians, and classes were not correlated with practice. Instructors were "experienced nurses" or doctors who were given no preparation in teaching or curriculum design and were in short supply.

Project HOPE in China Nursing Programs

Re-establishment of Graduate Nursing Programs in China

It was the goal of the MOH to have a new baccalaureate nursing program in each province by 1989 at a time when there was no standard curriculum or curriculum recommendations. The major problems with a move to baccalaureate programs were:

1) no nurses prepared as teachers;
2) lack of understanding of what is meant by concepts basic to nursing, such as nursing process and holistic nursing;
3) limited experience in nursing administration and leadership; and
4) no research experience.

The Project HOPE transnational nursing program began in 1983 when two Chinese-American Nurses were sent to The People's Republic to assess the feasibility of establishing a Division of Nursing to teach advanced nursing at Xian Medical University. In order to do this, a Teacher Preparation Program (TPP) had to be established to develop the curriculum and teach the nursing content. Project HOPE also fulfilled the serious need expressed by the Chinese for modern textbooks in medicine, allied health and nursing-- a total of 75,000 books were donated.

- ***The First Instructor/Teacher Preparation Program (TPP) for University Baccalaureate in Nursing Education (BSN), Xian Medical University (XMU), 1984-1987***

Goals and Objectives:

The TPP developed by Xian Medical University (XMU) and Project HOPE was designed to prepare a select group of graduate nurses with the skills necessary to become advanced nurse clinicians capable of teaching college-level student nurses in the classroom and clinical settings in the first BSN University-based program. A major problem recognized by the MOH was the lack of nursing instructors for the proposed Division of Nursing (DON) and so the program was developed as a continuing education program to utilize the resources of Xian Medical College faculty and facilities, and draw upon the clinical base and nursing expertise of hospitals affiliated with the Medical College along with the support of Project HOPE in providing additional resources, faculty and consultation. The continuing education to prepare nurses to teach in the proposed baccalaureate nursing program was the first phase from May 1985- though November 1986 and included the following areas:

1) basic sciences
2) body systems (medical/surgical, trauma, rehabilitation)
3) maternal/child health
4) chronic diseases (epidemiology)
5) curriculum development, nursing management, and research
6) nursing clinical practicums

The first fifteen instructors became the faculty for the TPP program that began in September 1985 through July 1987.The goal of the TPP programs was to prepare faculty for the Division of Nursing (DON). The objectives were to:

1) integrate nursing concepts and process concurrently with clinical practice
2) advance nursing specialization within the framework of the nursing process
3) develop expertise in curriculum
4) develop principles of nursing management, leadership and research

The curriculum was designed to present didactic content with emphasis on correlation of content and concurrent clinical practicums in order to provide application and transference of learning in clinical settings. Project HOPE nurses coordinated the program in collaboration with Xian Medical College and provided U.S.-based faculty to present concepts basic to nursing care in acute and primary settings, curriculum development, management and research. The Xian Medical University established the DON in 1987.

The TPP program covered 20 calendar months and was closely developed in collaboration with the MOH and XMU. The students were well qualified- graduate nurses from a variety of nursing practice specialty areas who had knowledge of the English language. There were 22 students in the first class and the graduates were assured permission to teach in the new BSN college level programs. In the final phase of the program the students designed a BSN curriculum which was instituted the next year.

"The primary goal was to educate graduates to develop qualities of independent decision-making in the realm of patient care- the philosophy was to develop a person who can analyze, draw relationships, and make independent nursing judgements in patient care". (Chen-Louie, 1986)

The curriculum was taught in phases with one nurse educator, who was recruited from a US – based College of Nursing BSN program, to teach in one or more phases over an 18-month period. Chinese counterparts were assigned to the nurse educator who eventually took on the responsibilities of teaching under the supervision and mentoring by the Project HOPE nurse educators. Specialty skills in acute nursing were emphasized to achieve the level of clinical skills expected by peers, physicians and the MOH. Clinical practice was concurrent with classes in each phase to break the mold of apprenticeship learning, to better correlate theory to practice, and to facilitate problem-solving skills as opposed to facts and figures in a procedure-dominated and ritualistic settings.

The Counterpart Concept

Project HOPE began to help medical universities establish baccalaureate nursing programs with virtually no trained nursing teachers and the shortage of nursing personnel in hospitals made them reluctant to give up any existing trained nurses. A major success story for the development of new BSN programs in China was the counterpart system first instituted at XMU. The TPP had Chinese counterparts assigned to the Project HOPE team – nurses who were credentialed, respected and had an extensive professional network to which HOPE needed access – such as the MOH and Chinese Nursing Association, and who strongly supported the need to upgrade nursing education. These nurses helped the Project HOPE team to understand the socio-cultural and historical context in planning the curriculum, to give consideration to local factors within the national setting and gave critical feedback as the TPP developed. The nursing counterpart (Shao Wei Wei) was appointed as Director of the new Division of Nursing at Xian Medical University - approved by the MOH and Ministry of Education (MOE) during the course of the TPP. The selection of faculty/students ensured that each had clinical skills, responsibility towards work, communication skills (English-speaking skills), teaching experience and ability to relate to others. The students complimented all areas including medical, surgical, maternal, child, public health and nursing fundamentals.

The Xian TPP, successfully concluded in July 1987, was the first nurse-developed, nurse-implemented baccalaureate education program in China to develop the first Division of Nursing- and was seen as a prototype for preparation of nurse-instructors for higher nursing education throughout China. In 1987, a second TPP program was offered to train nurses for all northeast China and was the only program in several surrounding Provinces.

National Nursing Teacher Training Center, Beijing Medical University (BMU) 1988-1991

Interest in BSN nursing was spreading across the country. In 1984, Beijing Medical University started its first BSN program in 1985 (since 1949) and 11 other schools began programs in 1985-87. Beijing Medical University School of Nursing was the first school to receive permission for the MSN program in 1990. In 1986, Madame Lin Yu Jin, a visionary nurse leader and president of the China Nurses Association, along with the MOH, Ministry of Public Health, Xian Medical University, and Project HOPE sponsored a conference on high education in nursing. The outcome of this conference was multiple requests for HOPE faculty preparation programs for their institutions.

Beijing Medical University (BMU), with consultation from HOPE nurse educators, adapted the Xian TPP and offered it over the next three years (1988-1991) to faculty participants from 11 institutions in provinces throughout China. There were 85 participants from 45 different university affiliated hospitals. These students returned to their universities and shared the knowledge they had obtained with their fellow faculty members and the nursing staff of affiliated hospitals.

The BMU collaborative nursing teacher training was a 20- week program implemented in phases over a three- year period. The curriculum was designed by BMU faculty, Ministry of Public Health, the China Nursing Association, and Project HOPE nurses using the Xian TPP as a guide. Project HOPE nurses were the initial trainers and worked with counterparts to help them learn teaching methodologies. The curriculum was designed for nursing teachers to have an orientation to new nursing concepts including nursing leadership, management and research and curriculum development. It concentrated on providing teachers with basic tools for teaching their own specialty, including Medical –Surgical, Maternal and Child Health, Psychiatric Mental Health, and Community Health.

The BSN Program at Hangzhou Zhejiang Medical University (assisted by BMU faculty-1989-1991)

Zhejiang Medical University established a TPP and a Division of Nursing in 1989 and requested assistance from Project HOPE to prepare 12 faculty and clinical preceptors for its proposed five-year Baccalaureate Nursing program. TPP faculty were selected from BMU and Project HOPE clinical specialists from Boston Children's Hospital. Faculty who had participated in the BMU

programs returned to Hangzhou helped to establish the baccalaureate in nursing program in addition to their on-going continuing education program (since 1984) in adult, pediatric and neonatal intensive care, and rural perinatal nursing program.

First Master's in Nursing Program in China-Beijing Medical University(BMU), 1991- 1994

As baccalaureate nursing education was growing, the need for a Master's program in China became more evident. The development of a Master's program in nursing at BMU was then approved by the MOH. In 1991, HOPE conducted a program to prepare faculty to teach at the graduate level and the curriculum focused on advanced concepts leadership and management, research, curriculum and teaching methodologies appropriate to the master's level. Ten BMU faculty and four clinical instructors who had completed the BSN TPP were initially trained. Clinical demonstration units were established in two affiliated teaching hospitals to provide a setting for clinical teaching and demonstration of quality nursing care and management of patient care units. HOPE provided fellowship opportunities for the faculty allowing short visits to masters and doctoral nursing programs in the US. A Learning Resource Center was developed with books, journals and AV materials and simulation models for practice. In 1994, the first class of 12 Master's students in nursing were admitted.

Dorothy Aeschliman: Revolution of the Nursing Profession

Dorothy Aeschliman, a nurse educator, was an early Project HOPE Program Director in China. She had missionary parents and grew up in China. She was influential in developing the historic partnership between Project HOPE and founder Dr. William Walsh and the China Ministry of Health in 1984. She gathered a small group of American nurses and together they started the first Teacher Training Program (TTP) to teach faculty new concepts of nursing theory and clinical practice and to develop a bachelor's degree in nursing at the Xian University Medical School. Her efforts were extended to the establishment of BSN programs at Beijing University and Zhejiang Medical School and expanded to TTPs in nine universities across China. Her efforts to support a higher level of nursing education and to change nursing to a more respected profession was key to the revolution in China's entry to the modern world at that time and to the donations of the Huang family.

BMU Nursing Clinical Demonstration Units

Two model clinical teaching units, in Critical Care (CCU) and Intensive Care (ICU) were developed in two affiliated teaching hospitals (Second and Third Affiliated Hospitals). These units provided model clinical settings for nursing education to apply theory to patient care and unit management- as a laboratory for clinical teaching and demonstration of quality nursing care.

Clinical Nursing Education, Beijing Medical University (BMU), 1991

As the Xian and BMU nursing baccalaureate programs advanced, there was a need to assist other programs in China to prepare a core group of nurses capable of teaching baccalaureate students in the advanced nursing concepts and clinical education. In collaboration with certain Medical Universities and the China Nursing Association, a series of continuing education courses were offered. Nurses were recruited from 11 baccalaureate programs in China capable of being instructors in their affiliated university clinical units (24 participants).

Continuing Education in Clinical Nursing Education in Six Regions in China: Shanghai, Hangzhou, Nanjing, Feng YANG, Shenyang, Guangzhou, and Xian, 1987-1992

Project HOPE and the China Nurses Association signed a 5-year agreement to jointly provide nursing continuing education countrywide to employed nurses through regional workshops in nursing management, nursing process, nursing research and nursing skill enhancement. Most courses were designed for clinical nursing staff focusing on application and evaluation of the basic concepts of nursing care. The importance of faculty being involved in student's clinical education was considered by many as a new concept.

- **Shanghai Symposium on Recovery Room and ICU Patient Care:** Training of medical doctors and nurses on recovery room and ICU patient care and use of emergency equipment for patients with stomatology disease at affiliated hospital of the Shanghai Second Medical University (SSMU).
- **Zhejiang Medical University: Rural Maternal and Child Health Program:** In order to increase the level of quality of perinatal and neonatal medical and nursing care, the Rural Maternal and Child Health program was initiated in three Provincial Hospitals and four County Hospitals. This included an improved referral and transportation system, establishment of hospital emergency response for perinatal conditions, and a home visiting program. Clinical teaching workshops were conducted on pediatric nursing, child growth and development; and the impact of hospitalization on children.
- **Shanghai Xin Hua Hospital - Pediatric Cardiovascular (PCV) Program:** Xin Hua Hospital prepared nurses competent in the management of critically-ill children with congenital cardiovascular disease (CHD) and skilled in the use of intensive care equipment. Short-term nursing fellowships were provided to attend the training in operating room, post-op, cardiac intensive care (CICU) and pediatric wards on care of PCV (pediatric cardiovascular) patients. The curriculum was developed and implemented by Project HOPE nurses from Children's Hospital in Boston. The PCV training was an important step to enhance the critical care capacity for newly established pediatric CHD care.
- **Chengdu West China University**: **Hospital Recovery Room Nursing**: Nurses were trained in recovery room patient care and emergency nursing and skilled in the use of emergency equipment for stomatology patients.
- **Zhejiang Medical University and Xian Medical University:** Six months of continuing education courses were offered that focused on application of basic concepts in patient care and clinical supervision and evaluation of students. Sixty-nine nurses from Northwest Province were trained.

China Nursing Association Continuing Education Expanded Across China, (1992)

The China Nursing Association requested continuing education workshops conducted at 8 regional centers in China: Shanghai, Hangzhou, Nanjing, Feng Yang, Shenyang, Guangzhou, Beijing, Kunming, and Xian.

- **Nanjing**: Clinical teaching workshops on how to teach clinical education and evaluation of nursing care.
- **Feng Yang**: Clinical teaching workshop and courses on gerontological nursing, nursing research, and nursing evaluation.
- **Shenyang**: Clinical teaching and evaluation workshops on nursing care of adults and children.
- **Beijing**: Clinical teaching and evaluation workshops on nursing care of adults and children.
- **Guangzhou Medical University**: Clinical teaching and evaluation workshops of adults and children.
- **Shanghai Second Medical University**: Clinical teaching workshops - use of 9th People's hospital Recovery Room and Xin Hua PCV as clinical demonstration units.
- **Zhejiang Medical University:** Clinical teaching courses: psychiatric and public health nursing.
- **Xian Medical University:** Clinical teaching course in geriatrics, research methods and teaching methodologies.
- **Urumuqi:** Classes in administration and management for nursing directors
- **Kunming:** Nursing process and basic nursing concepts taught to over 350 nurses.

Subsequently, the Chinese Government was given a WHO grant for the purpose of sending nurses abroad for study- 6-12 months of continuing education courses.

Pediatric Emergency Burn Care and Prevention Program- SCMC, 1994

The Pediatric Emergency Burn Care and Prevention Program, established in 1994, utilized multidisciplinary teams from Massachusetts General Hospital and Harvard Medical School to provide specialized training on Western burn care techniques to staff at SCMC and Liuyang People's Hospital. Nine one-year nursing and medical fellowships and three educational exchanges were provided to learn advanced burn care techniques. The program successfully reduced the number of deaths at Liuyang People's Hospital.

Zhejiang Medical University (ZMU) - Distance Teaching Program, 1994-1995

A Learning Resource Center was developed for the Health Sciences and a **Distance Teaching Program** in cooperation with the China National Television University (NTU) and in consultation with the Department of Distance Teaching at Michigan State University,offered courses to nurses throughout Zhejiang Province. This was the first nursing program in China to use the "Train the Trainer" model to prepare nurse educators to teach in classrooms or clinical settings using distance learning methodologies and technology. Parts of the province were poor and isolated and overland travel was difficult and time-consuming. These demographics led to the use of distance teaching methods. The course trained experienced nurses as administrators and a first group of preceptors were prepared to conduct the Distance Training Program - 40 participants - a total of 27 preceptors. In 1995, the first class of 400 students were enrolled and began their distance classes. The

Preceptors facilitated the courses, were present at the classes and answered any questions and facilitate discussion. ZMU provided transportation to the training sites for students and accommodations for preceptors and HOPE nurse educators. Seven ZMU faculty and preceptors visited Michigan University to learn about distance teaching. The three-year program was coordinated by Project HOPE nurses. Challenges to this program centered around the acceptance of distance teaching and the differences in teaching methodologies between American and Chinese-didactic as opposed to interactive approaches. A combination of audio-visual tapes was developed by the preceptors in collaboration with ZMU faculty and the use of broadcast time through NTV. The results of this program continue to have a major impact on the China nursing profession especially in remote rural provinces.

Pediatric Nursing- Shanghai Children's Medical Center (SCMC), 1998

In 1998, Project HOPE's relationships with health professionals throughout China culminated in the opening of the Shanghai Children's Medical Center (SCMC), a state-of-the-art teaching hospital capable of improving the health of 400 million children in China. At SCMC, US nurses, doctors and other health professionals worked side by side with their Chinese counterparts, training them in modern pediatric care for more than 420,000 children who visit the facility each year. SCMC became the primary site for HOPE's nursing programs and graduates were sought for the staffing of the new pediatric hospital. The health professionals trained at SCMC assumed responsibility for replicating what they had learned throughout China.

Nurse Education Certificate Training Program Plan for SCMC, 1997

In preparation for the opening of SCMC and final designation of staff, Project HOPE trained key professionals from each of the 26 disciplines in pediatric care. The education plan included the following disciplines: pediatric nursing, emergency medicine, burn care, cardiovascular surgery, echocardiology, pediatric and neonatal intensive care, preventive dentistry, oncology, hospital administration, and information technology. Nurses were trained all these specialties. A 16-week Nursing Education certificate course for head nurses and clinical nurses was completed with 19 graduates in 1997 and a second in 1998. A total of 9 fellowships were provided in Hong Kong and Taiwan.

In 1999, training for nurses in neonatal intensive care was provided by George Washington University consultants on respiratory care, infection control, resuscitation, developmental care, and the importance of involving families. In addition, a structured patients' transport system was developed, as well as, infection control procedures, supplies and equipment and bedside mentorship.

International Nursing Conferences in Shanghai

To promote a better understanding of advanced nursing practice and multiple roles of nursing profession, Project HOPE initiated several international nursing conferences at SCMC to facilitate international nursing communication and exchange with support from SSMU and Shanghai Nursing Association.

In 2001, Project HOPE initiated the First Pediatric Nursing and Nursing Management conference at Shanghai Children's Medical Center. Nursing management, nursing workload measurement, advanced pediatric nursing practice and quality for nursing practice were the major themes of the conference, more than 350 participants attended.

In 2004, the Second International Nursing Education Management conference addressed international standards of nursing education. A total of 69 engaged in conference discussions.

In 2008, the Third International Nursing education and Management conference at addressed unmet gaps in pediatric nursing practice and advanced nursing specialty education. The conference attracted more than 150 participants from various provinces and hospitals.

Enhancing Pediatric Nursing Practice – Post 2000

Since the establishment of SCMC, Project HOPE has provided many efforts to promote pediatric nursing education and practice. Nurses as change agents, professional roles of nurses, family-centered nursing practice, neonatal development care, patient safety, nursing sensitive indicators, pediatric palliative care etc., were all introduced to SCMC by external nurse volunteers and consultants. In addition, modern management tools, such as risk management, quality improvement, root cause analysis, nursing specialty advances, international patients' safety goals, and standards of the Hospital Joint Commission were all introduced and adapted by SCMC nursing leaders. SCMC and the Shanghai nursing community were viewed by the nursing community in the nation as the pioneer in nursing management.

To further nursing practice advances, SCMC nursing leaders established a pediatric hematology-oncology nursing network in 2010. A total of 40 hospitals participated in the network and SCMC shared nursing standard of care, and chemotherapy safety with these hospitals. Subsequently, a pediatric palliative care training was further organized by the faculty from St. Jude, Boston Children's Hospital and the ELNEC-American Association of Nursing Education to train

passionate nurses about palliative care in Shanghai. Post year 2000, SCMC with support from Project HOPE continues its legacy in pediatric nursing practice by incorporating clinical simulation training, refine advanced nursing role, and taking a leading role in pediatric nursing informatics to embrace the rapid advances of pediatric nursing practice and to improve patients care quality in China.

2001-2014: Wuhan Medical University Baccalaureate, Masters and Doctoral Nursing Education

Improving Nursing Management and Education in Wuhan, China 2000-2010

In 2000, the merger of Wuhan University with Hubei Medical University resulted in the integration of the medical, dental and nursing facilities. The merger included discussions on future collaboration on nursing education resulting in Project HOPE signing a five-year agreement to provide nursing education technical support and curriculum development consultation. At the signing of the agreement in 2001 the school was named the Wuhan University HOPE School of Nursing and became the ninth member of the Project HOPE Network of Chinese Universities.

Dr. Marcia Petrini receives the National Friendship Award September 2008

Wuhan University and HOPE agreed to establish a School of Nursing that would provide a BSN and Masters programs and the first Doctoral in Nursing program in China - focusing on nursing education, clinical and curriculum development. Dr. Marcia Petrini, a U.S. trained nurse educator with extensive experience with Project HOPE in China, was appointed the school's first dean in 2003 and led a major reform and modernization of nursing curriculum based on the U.S. model. Dr. Petrini provided the leadership for this major effort and ultimately received a Friendship Award- the highest award in China for foreigners who have made major contributions to the development of Chinese economy, culture and education.

The nursing programs were planned and implemented over a period of four years as follows:

- 2002 Planning and administration development
- 2003 Initiation of MSN Program
- 2006 PhD in Nursing Program initiated - community nursing, nursing management
- 2008 first group of Master's students graduated

Wuhan School of Nursing Signing Ceremony November 2001

From 2006-2011, Dr. C.J. Huang and family provided generous support to the program enabling Project HOPE and Wuhan University to work together to build the capacity of the nursing school through providing overseas training opportunities and bringing international experts to the nursing school. In 2010, Wuhan University established a state-of-the-art **Nursing Simulation Lab and Research Center.** This project offered a simulated interactive learning environment which increased student's problem-solving, critical thinking, and decision-making skills to deal with patient situation in real settings.

Project HOPE President and CEO Dr. John Howe at the graduation ceremony of the first group of Wuhan University HOPE School of Nursing BSN students, May 2008

Goal, Objectives, and Approaches

The overall goal was to assist the HOPE-Wuhan School of Nursing to become an internationally accredited nursing school to continue to improve nursing education and research capacity. Approaches used included:

1) overseas fellowship training (long-term and short-term) for both teaching, clinical and research faculty;
2) international experts conducting seminars/ workshops; and
3) international conferences to present research results and share program experiences.

Strategy

At the time of initiation of the Wuhan partnership, most university nursing schools in China did not have Masters-prepared nursing faculty to teach baccalaureate students. The usual model used baccalaureate -graduated faculty to teach baccalaureate-nursing students. So, the strategy to improve nursing education was to enhance the teaching qualifications of the faculty to be better trained to teach the baccalaureate programs and to introduce a high-quality master-level nursing curriculum, educational techniques, and methodologies.

The Project HOPE-Wuhan School of Nursing established the Master's Program in 2003 focusing on addressing the problems of lack of qualified nursing faculty, limited learning resources and insufficient research activity. The master's program was established using internal and external support, implementing a faculty-training/development plan with overseas fellowships, and providing experts in the field of nursing higher education. The focus was on development of nursing research methods, curriculum design, teaching methodologies, clinical updates on adult, maternal, pediatric, newborn, mental health, and community health nursing. There was a re-focusing on nursing to a more professional wholistic nursing, health, human and environment model. A nursing learning lab was established with for students to practice their clinical skills along with updated textbooks and learning materials, computer aids and electronic learning tools.

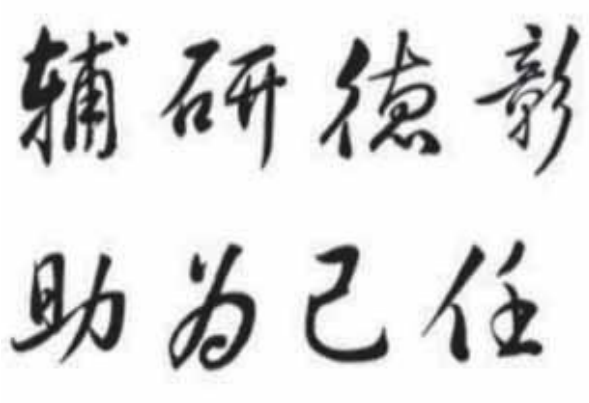
Results

Over 14 years, 54 clinical teachers received training in US institutes including, North Carolina University, Case Western Reserve University, and Harvard University focused on teaching philosophy and methodologies and state-of-the art clinical management. In addition, the program conducted over 40 workshops by international experts with over 1,000 participant beneficiaries. Currently, the HOPE School of Nursing has 24 full-time faculty of whom 10 have PH.D. degrees and all have Masters Degrees and 36 part-time teaching faculty. It serves 188 undergraduate students from 11 Chinese Provinces, 49 graduate students including 4 PH.D. students and more than 7,000 continuing education students nationwide.

Wuhan School of Nursing - Today

Today, the HOPE -Wuhan School of Nursing is one of the preeminent centers of nursing education in China. The goal is to now become an internationally nursing school in five years – 2019 and expand into other regions within China. It has established four Clinical Teaching Centers; Long-Distance Teaching, Nursing Simulation and Research, Nursing Disaster Preparedness, and Comprehensive Simulated Rehabilitation Center. These four centers have significantly improved the teaching, experimental and research capacity, and informative teaching platform. In addition, the school has established seven clinical teaching sites including People's Hospital of Wuhan University, as well as six community health centers of Wuhan City which provide high quality and effective practical teaching resources supporting the curriculum of the school. The school has changed the educational objective from a focus on skills to one of improving nursing professional education. It has revised the curriculum, optimized basic science courses, increased the liberal arts focus and integrated nursing practicums. It has adopted new methodologies, including conceptual-based teaching and simulation education. The school has earned an international reputation and

fostered international collaboration with nursing schools in Norway, Finland, Japan, Hong Kong and Taiwan and promoted a broad range of teaching, research, and professional training. Most graduates are employed in high level quality hospitals or are pursuing their masters of doctoral degrees through the collaborative partnerships of the HOPE School of Nursing.



"To assist research is a virtuous endeavor.
To help is my responsibility."

Dr. C. J. Huang

"Chang Jen Huang"

Chang Jen (C. J.) Huang was born in Liuyang County, Hunan Province, China, in 1916. He graduated with a bachelor's degree in engineering from Wuhan University in 1938, and worked as Deputy Section Chief and Chief Engineer in the Engineering Department of the Chinese Air Force over the following decade. During the early 1950s, he was an Associate Professor in the Civil Engineering Department of the National Taiwan University.

After earning a Masters of Engineer degree from the University of Michigan, Dr. Huang went on to hold top management positions in both the public and private sector for many years, including the U.S. Summit Industrial Corporation in Bangkok, Singapore Petroleum Corporation, Oceanic Petroleum Corporation, and H&W Enterprises. He was an Associate at the Stanford Research Institute and Advisor to the U.S. Congress. In 1993, Dr. Huang received an Honorary Doctor of Philosophy degree from Central Connecticut State University.

In addition to his leadership roles in business and engineering, Dr. Huang became widely recognized as an accomplished calligrapher. *(His work is featured in this Monograph, and above.)* A book of his work was published in 1994. In his eighties, he developed a complex language system based on the modern word processor, writing recognition technology, the Internet, and calligraphy called Global Language Solution. This application is based on a new style of Chinese calligraphy which he invented, combining the speed of the traditional cursive style with the recognizability of standard script.

During his lifetime, Dr. Huang donated generously to a number of hospitals and schools in China, created a scholarship fund at Wuhan University, and provided financial support for students and faculty at various other universities and middle schools. He also established the first secondary school in his hometown, Ouyang Yu Experimental Middle School, named after his late wife.

Dr. Huang began supporting Project HOPE's work in China in 1993. Donations from Dr. Huang and the Huang family during his lifetime supported a range of educational and health initiatives, including:

- Completion of an outpatient clinic at Red Cross Hospital in Liuyang City, Hunan Province
- Establishment of a pediatric emergency burn care program in Shanghai and Liuyang, including the training of medical professionals in burn care
- Construction of a patient care addition to Liuyang People's Hospital
- Training and equipment for Liuyang People Hospital, in collaboration with the Shanghai Children's Medical Center and Changsha Hospital

Above all, Dr. Huang's generous support of Project HOPE, in life and through his bequest, has allowed for the development and expansion of programs at the HOPE School of Nursing at Wuhan University through faculty and curriculum development, support for nursing students, and educational exchanges, and for building the capacity of Liuyang People's Hospital.

B. Other Early Medical Initiatives

1. Neonatology and Maternal/Child Health Program, Zhejiang Province
Author: Therese Hesketh

Supporting the Chinese to Improve Child Survival:
The Neonatal and Pediatric Intensive Care Unit at Zhejiang Medical University
And the Maternal and Child Health Outreach Program

Over 30 years on, it is easy to forget that in the early 1980s neonatal and pediatric intensive care was unknown in China. So, the fact that it was Project HOPE's first project there was an intensive care unit at the Children's Hospital of Zhejiang University showed courage and vision. The Children's Hospital created the space, John Kattwinkel provided the initial technical input, and state-of-the-art equipment was donated by a number of US medical equipment companies. Two pediatricians and a pediatric nurse were sent to the US for training, and one of the doctors, Sun Mei Yue, became director of the new unit on her return.

As a totally new discipline in China there was a very steep learning curve. In the first two years the educational component was delivered by very experienced neonatologists and pediatric intensivists from the US who volunteered for short periods at the hospital. But as was the case then, the individual clinicians often followed different clinical protocols, and this left the Chinese clinicians confused, and this affected quality of care and clinical outcomes. After just over a year, an evaluation recommended the recruitment of a full-time pediatrician and pediatric nurse to provide on-going clinical and educational support. I was the pediatrician and the nurse was Sue Kinnon.

From the time we arrived the twelve-bed neonatal intensive care unit was busy with the management of premature and very sick newborns. Without an obstetric unit on site, all newborns were transferred in from other hospitals. In the absence of ambulance services, and of course people didn't own cars then, many were brought long distances on public transport.

The pediatric part of the intensive care unit functioned mainly as a post-operative cardiac unit. The pediatric cardiac surgical team at the hospital had been performing technically relatively complex procedures for several years, but outcomes had been disappointing, mainly because of poor post-operative care. With the good equipment and better training of staff provided on the new Pediatric Intensive Care Unit, outcomes for children with congenital heart conditions, who came from all over the province and beyond, improved dramatically.

After Sue and I arrived, we focused on the training of the doctors and nurses. It was organized so that all medical and nursing staff in the hospital rotated through the NICU-PICU on a six-monthly basis, so that all juniors had exposure to intensive care, in a way which was unique in China at that time. Initially we worked with the Project HOPE Learning Resource Center to develop teaching materials. We then went on to adapt teaching materials which had been developed by John Kattwinkel and Ron Bloom to produce a textbook of neonatal intensive care in Chinese. Our first cohort of trainee doctors included one from the University Women's Hospital, who went on to establish his own very successful NICU, and which also reduced the need to transfer fragile newborns to the Children's Hospital.

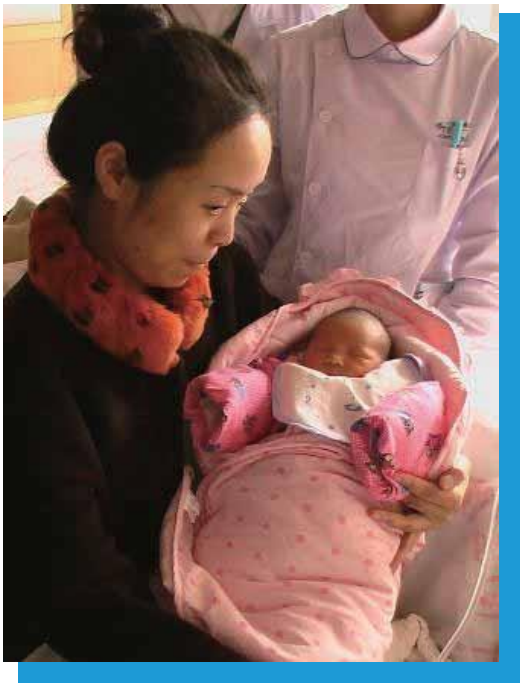
As already noted in this monograph, Project HOPE recognized from the outset that providing equipment comes with the responsibility of ensuring it is maintained, something frequently forgotten when foreign organizations donate medical equipment. Project HOPE's parallel program in Biomedical Engineering, which supported our ICU (and hospitals throughout the university) by providing high quality maintenance and repair. This meant that equipment was almost always in use. This should be seen as a model of good practice for other international health providers.

There were considerable challenges on a number of levels. But two issues were particularly important. The first was the cost of care. At that time in China very few people had health insurance, and almost no-one in rural areas had any coverage. The cost of intensive care was high. In the best-case scenario parents borrowed money to pay for care, and the hospital did operate a system of loans whereby parents could repay over time. But some parents simply refused care because they were unable to afford it, or even removed a baby after treatment had started. But we managed to get a grant from the Zhejiang Health Bureau to provide financial support for poorer parents, so they wouldn't have to face such terrible decisions. The second issue related to the poor level of overall medical care in China at that time. Since all newborns were brought-in from outside the hospital, at a time when the transport infrastructure was very limited, many arrived in poor condition, and could not be saved. For example, in the winter of 1987-88, 50% of the babies admitted to the NICU had temperatures less than 35° C and 25% less than 32° C. Many had been delivered in hospitals where there was no knowledge of the very basics of neonatal care, including keeping babies warm after delivery. We realized that basic neonatal care needed to be taught at these lower levels, and this led to the maternal and child health outreach program.

Working with staff from the NICU/PICU and with the support of the Zhejiang Provincial Health Bureau, we started a program which involved training of trainers of pediatricians and nurses at lower level hospitals. Project HOPE also provided the necessary basic equipment for neonatal care, including radiant warmers, incubators and resuscitation equipment. The teaching methodology was again based on the work of John Kattwinkel and Ron Bloom, and was self-instructional in design, so that it could be delivered across many lower level hospitals with limited teaching resources. The model proved effective. Through Project HOPE it was delivered across Zhejiang Province. It was subsequently delivered across 10 more provinces with funding from the British and Chinese governments.

By late 1988, it was clear that the NICU/PICU was functioning well enough that outside support was no longer necessary. We had even cared for the first (and famous) quadruplets ever born in Zhejiang, and all went home in very good condition. The standards of clinical care were good, although optimal care was sometimes limited by parents' ability to pay.

Project HOPE's objectives to establish a center of excellence in the Chinese setting for NICU/PICU had been achieved. The unit had also become a training center for clinicians wanting to set-up such units in other Chinese cities. So the project was handed-over to the University. It has gone from strength-to-strength since. At its new home at the new Children's hospital in a fashionable suburb of Hangzhou, it is a center of excellence for intensive care for China. It resembles anything you might see in the US.



China has changed unrecognizably since the early 1980s. Hangzhou has at least doubled in size and has a vast Metro system. The center of the city around the old Medical University, where the Project HOPE staff all lived, is now an up-market shopping mall. The university has moved out of town to a gigantic landscaped campus. All county hospitals in Zhejiang have at least a special care baby unit, and many have their own NICUs. Most people now have some kind of health insurance. The One Child Policy has been lifted.

Perhaps most importantly the infant mortality rate in Zhejiang is similar to that of many American states. This is of course now mirrored in many of the more developed provinces in China and reflects mainly improved living standards. But Zhejiang has been in the forefront of reductions in child mortality. I do believe that this is partly because of Project HOPE's foresight to recognize the importance of intensive care for children back in the 1980s.

2. Stomatology Program
Author: Dr. Thomas Albert

I appreciate the opportunity to write highlights of HOPE's Stomatology project for this Monograph. It is appropriate, as I was part of the very first HOPE team that went to China in 1983, at the request of Dr. Walsh after his first visit.

First, let me explain Stomatology. It is a branch of medical science that includes diseases and deformities of the oral cavity and related structures. It is really seen more as a specialty of medicine and is a more common designation in Asia and Europe. In China, Stomatology is one of the main divisions of all Medical Schools. The Harvard School of Dental Medicine is the best example in the U.S.

I. The Beginning

In the Spring of 1983, I wrote a letter to Dr. Walsh inquiring about sabbatical time with Project HOPE. I later received a call from Dr. Walsh, who had just returned from China on a trip arranged by Chinese Medical Association with Beijing and Zhejiang Medical Universities.

Dr. Walsh had visited Xian, met the Medical and Nursing School deans as well as the Dean of Stomatology. He said he wasn't sure what Stomatology was, but that it seemed to be dental and medical. With my dental and medical background, he asked if I would be interested in exploring opportunities. I answered Dr. Walsh with an enthusiastic **yes**!

In October 1983, Dorothy Aeschliman, Head of Nursing Education and developer of Nursing and Intensive Care facilities on the HOPE Ship; Keith Blayney, Dean of the School of Allied Health Resources at the University of Alabama and a veteran HOPE volunteer, the current Medical Director for HOPE; and myself went to Xian. Dirt roads, walled city, no private cars, all Mao jackets…Xian is famous as the beginning and end of Silk Road, and the Terra Cotta Soldiers, which had been recently discovered.

We gathered information and outlined plans for Nursing, Hospital Administration and Stomatology programs. At the end of the trip, I was invited to visit the famous #9 Stomatology Hospital in Shanghai and was able to include them in our assessment. We later extended this base to Chengdu.

My plans were presented to Dr. Walsh who said, "OK, let's get started!" My first, and best, decision was to recruit Dr. Walter Guralnick, my mentor at the Harvard School of Dental Medicine (HSDM), Harvard Medical School (HMS) and the Massachusetts General Hospital (MGH). In 1980, Dr. Guralnick, at the invitation of the Chinese Medical Association, which includes Stomatology, had led a team of "Stomatology" People from HSDM, HMS, MGH and other institutions – a delegation which fortunately included me. This visit led to the establishment of the first medical exchange programs between China and several U.S. hospitals, with doctors coming to Boston and other centers to study. Dr. Guralnick met with Dr. Walsh and me in Boston to lay out plans. We were off into an exciting, life changing adventure!

In the Spring of 1984, we returned with a diverse HOPE Team to Hangzhou, Xian, and Shanghai. We lectured, toured, and did some surgery, coordinating with the Nursing and Hospital Administration Programs. In fact, my future (and current) wife, Kathy, came with Dorothy Aeschliman to inaugurate the Nursing Education Program in Shanghai and Xian. We were fortunate to have Harry Schwartz and Mei Ling Ma, who had previously been to China multiple times. Mei Ling's Chinese roots and cultural sensitivity were invaluable in helping us accomplish much more than expected, both in the short and longer term.

The team quickly discovered how adept and knowledgeable the Chinese surgeons were, in spite of old, poorly maintained facilities. China was still in the early stages of recovering from the Cultural Revolution which had decimated most of the infrastructure of the medical education system. In spite of this, once we looked beneath the surface, we found remarkably dedicated, skillful, innovative doctors who were skillfully managing huge numbers of patients.

We assessed their current function, staffing, and facilities, and identified doctors for exchange to the U.S. This eventually lead to huge changes in skills and educational programs. Dr. Guralnick and his wife Betty played a huge role in getting the respective East/West teams coordinated, establishing planning committee with deans and department chairs.

II. Exchange Programs

Exchange programs were orchestrated mainly by Dr. Guralnick at Boston facilities. Over the years, Wally and Betty Guralnick hosted and entertained dozens of Chinese stomatologists and others of various specialties. Exchange programs also included training in Public Health, Research Design, execution of research studies, etc.

Key individuals involved in the exchange programs included:

1. *Wang DaZhang, Chengdu.* Surgeon, eventual Dean of West China Stomatology. Spent time at MGH, Boston Children's, HSDM. Still influential in China.
2. *Dr. Yih Xiang Yu, Orthodontist.* Eventual Chair at Xian. Trained at HSDM, MGH, Boston Children's Hospital. Learned modern planning and techniques with Drs. Leslie Will, Carla Evans, and Paul Kuo. Long and still active relationship. Dr. Yih revolutionized Orthodontic training at Xian and created a model for modern orthodontics throughout China. She recently celebrated the 30-year anniversary of her modern department with a great celebration in Xian, including Carla Evans.
3. *Dr. Liu Jian Hua, Facial Reconstructive Surgeon (and married to Dr. Yih).* They combined to introduce Orthognathic Surgery (surgically moving the upper and lower jaws along with orthodontics to correct severe malocclusions). Developed one of the first Comprehensive Cleft/Craniofacial Teams in China as part of the HOPE Stomatology program.
4. Radiation Therapy. We arranged for the training in Florida of *Dr. Wang from Shanghai #9 Stomatology Hospital.* He returned to develop one of the first modern Stomatology Radiation Oncology Departments in China for treatment of head and neck tumors.

5. In 1985, HOPE sponsored *Drs. Chang Hsieh Tseh and Qiu Wei Liu from the Shanghai Stomatology Hospital* to tour stomatology hospitals and schools in Portland, Oregon; San Francisco; Los Angeles; Boston; and New York City. They presented talks and developed relationships which are still playing out today. This was incredible opportunity for them to demonstrate their knowledge, extensive experience and expertise that certainly rivaled ours.
6. *Dr. Bruce Donoff, Dean of the Harvard School of Dental Medicine* came with us to China in 1986, along with his wife Maddie. (My wife Kathy was seven months pregnant at the time!) He lectured, did surgery, made connections which has allowed for exchanges – utilizing resources at HSDM, HMS, and MGH. These exchanges continue with his robust expansion of Harvard School of Dental Medicine's Global Health outreach.

III. The First Chinese Oral Surgery International Conference

In 1988, at the request of Dr. Qiu Wei Liu, Dean of Stomatology and Director of the #9 Hospital, Shanghai, we gathered an international all-star cast to recognize the achievements of Chinese Stomatology on the world stage. It took a lot of administrative time and energy to work out the details, but the effort came together as the First Chinese Oral Surgery International Conference.

With the help of Dr. Guralnick in particular, we had a star-studded group of international Oral/Craniofacial surgeons present at a three-day conference in Shanghai. The presenters included:

a) Dr. Paul Tessier, France (who came early and operated on some complex cases with his Chinese colleagues. I had the privilege of scrubbing in and retracting-using the Tessier retractor for this famous craniofacial Surgeon. I had observed him in Boston Children's Hospital with Dr. Joseph Murray when I was a resident.)
b) Dr. Ian Jackson, Chief of Plastic/Craniofacial Surgery, Mayo Clinic
c) Dr. Edwin Everts, Head & Neck Surgeon at Oregon Health & Science University
d) Drs. Ralph Merrill and Roger West, Oral & Maxillofacial Surgeons from the U.S.
e) A large group of leading Chinese surgeons

The conference was well attended, highlighted with great ceremony. This represented a huge step forward in recognition of the progress of Stomatology in China. It has continued every year since then. 2018 will be 30 years.

IV. Comprehensive Care Team for Cleft/Craniofacial Deformities: A National Model

Cleft lip/palate, the most common congenital deformities of live birth in the world, are of course present in large numbers in China. We observed and participated in many cleft surgeries with our Chinese colleagues over the year. Frankly, given the state of facilities, training, etc. when we started, as well as the recent end of the Cultural Revolution that sent many of the doctors to the countryside, the surgical expertise and skill was at least on par with that of our U.S. trained surgeons.

However, it was apparent that they lacked a comprehensive approach to cleft beyond surgery alone. I had been fortunate to work with the Comprehensive Cleft Team in Oregon staring in 1978. It was an eye-opener compared to my experience in Boston. Dr. Robert Blakeley, a brilliant speech and language pathologist, was head of the team in Oregon. Dr. Leslie Will (at that time at HSDM, an orthodontist working with Dr. Yih) and her husband Paul Kuo (an oral and maxillofacial surgeon) pushed the idea of modeling a comprehensive team approach within the HOPE Stomatology Program.

We assembled a team including surgeons (Jim Smith, Paul Kuo, Jon Jacobs and others), speech therapists (Dr. Bob Blakeley), orthodontists (Leslie Will and Carla Evans), social workers (Betty Guralnick), ENT/Hearing people (Ed Everts, Charlie Emerick), restorative dentists, etc. – and matched them as mentors with Chinese doctors.

Hearing was interesting. At first, hearing was not considered a problem in this patient group. ENT people were not interested in participating. However, after bringing an audiologist (Barbara Blakeley) and testing hearing, they became believers. Dr. Sharon Higgins (ENT) came the next year and trained some young surgeons how to assess and put in PE tubes, etc.

The model which we started in Chengdu with Dr. Wang DaZhang (see "Exchanges") spread rapidly to Xian and Shanghai – and beyond. We found out several years later that the Ministry of Health soon made Comprehensive Cleft/Craniofacial Teams mandatory for Stomatology hospitals in China.

In Shanghai, during the early stages of development of the Children's Hospital, I helped to plan the Stomatology Section to include this concept. Space was designed for it. Unfortunately, as HOPE was winding down the Stomatology program, it apparently did not achieve its potential.

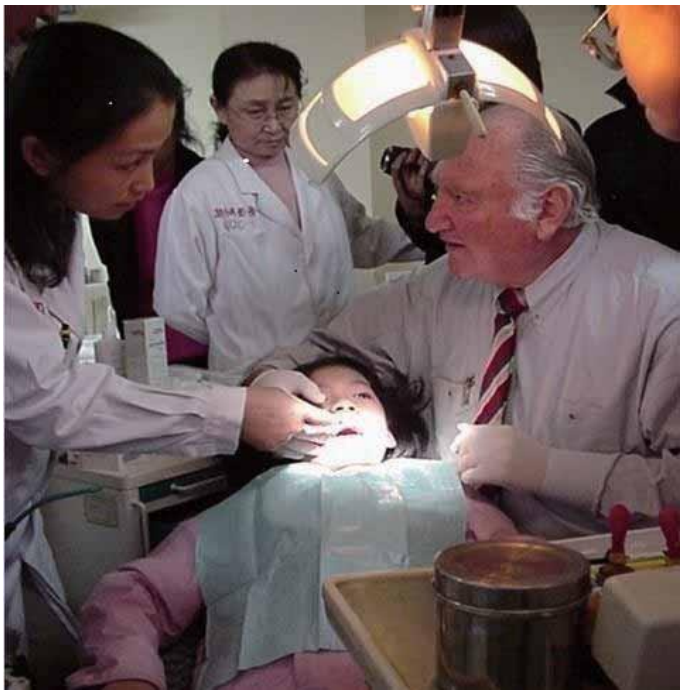
Currently, however, the new Stomatology hospitals built within the last 10 years in Shanghai and Chengdu, which we visited in 2011, have whole floors dedicated to Cleft/Craniofacial Comprehensive Care. The dedicated floors include speech, orthodontics, social services, dentistry, and hearing support. They, in my humble opinion, now serve as a model for us. The Comprehensive Team care for Cleft/Craniofacial Anomalies, beyond surgery alone, is another huge success and legacy of the HOPE Stomatology Program.

V. Preventive/Public Health Dentistry Programs, Shanghai and Chengdu

Preventive Dentistry was a part of the overall HOPE Stomatology Program from the beginning. Modern concepts were first introduced during our pre-HOPE trip in 1980 by Dr. Guralnick and Dr. James Dunning, a pioneer in preventive dentistry including fluoridation of public water supplies in the United States, and Chair of Public Health at the Harvard School of Dental Medicine.

Dr. Guralnick was successful in convincing people in the Chinese Ministry of Health (along with our colleagues from Shanghai, Chengdu and Beijing) of the need for preventive efforts. After all, dental disease is the most prevalent disease in the world, accounting for much pain, disability, and more lost school and work days than any other disease.

Dr. David Rosenstein, Chair of Public Health Dentistry at Oregon, went on a HOPE trip in 1984 to begin the HOPE outreach. Dr. Leon Dogon from HSDM joined the effort in 1985, expanding the preventive outreach both by developing school programs in Shanghai and then Chengdu, encompassing education, research, and clinical programs. The Preventive Program has trained many doctors, nurses and others, and added significant research parameters that had not existed when we were first involved. Great gains were made in outreach programs with fluoride rise efforts coordinated through the schools. Dental Hygiene training programs were developed with Chinese Stomatology hospitals. Students from the U.S. were routinely involved in these efforts.



Dr. Leon Dogon demonstrates proper dental care.

VI. Introducing the Level I Research Study Model to Stomatology

When we began the HOPE Stomatology Program, it was apparent that the surgeons were incredibly skillful and innovative (for example, doing the first microvascular free flaps in in the Galaxy 1978 Shanghai #9 Hospital). Also, the volume of patients in any one Stomatology Hospital was astounding compared to U.S. facilities.

Part of our early surgical team included Head and Neck Surgeons who saw the potential for Level I studies to be done within one facility only. This included Drs. Edwin Everts, William Wood, Dr. Guralnick and myself. The evidence was that this level of evidence-based study was not happening within the teaching hospitals in the early/mid 1980's.

Drs. Everts and Wood discussed with the Dean, Qiu Wei Liu, the possibility, given the number of head and neck cancers being seen at #9 Hospital, of doing a study on the effects of a common Chinese Traditional Medicine called "Shen Yang" on the survival rates of Stage 3 & 4 (advanced) oral squamous cell carcinomas. "Shen Yang" was felt to enhance the immune system in fighting cancer. The numbers of patients seen at this one hospital would equal a multicenter study in the U.S.

Dr. Guralnick enlisted the support of Dr. William Hsiao, Professor at the Harvard School of Public Health, to add rigorous study design and data analysis. Dr. Hsiao helped recruit some Chinese graduate students at the HSPH who worked with counterparts at #9 Hospital. Exchange visits were arranged for statisticians, administrative coordinators, etc. The measures of immunologic efficacy

were much less sophisticated then, but measured. Some 213 patents met the criteria for inclusion. Follow-up was initially two years, and then extended as far as 10 years. It was quite a feat to pull this all together, but the Chinese leaders committed themselves to doing this.

The study was submitted to multiple journals such as the *New England Journal of Medicine, Head & Neck Surgery*, etc., but was turned down. I personally think that part of the reason was editorial prejudice at that time about Chinese Medicine. In any event, it was published at several stages in Chinese journals. The study showed survival rate was improved, although the differences were not statistically significant.

However, the real the long-term benefit was the introduction of this methodology. Today, articles from Stomatology hospitals in China are widely accepted in international journals. Judging from current U.S. journal publications, research is currently a strong component of the Chinese hospitals we worked with.

VII. The Modern Recovery Room Model

On initial visits in 1983 and early 1984, little attention was given by the U.S. Stomatology Team to Surgical Recovery Rooms. They superficially seemed to have a reasonable way to recover patients. However, even in the leading Chinese hospitals, years of deprivation, political repression, and the Cultural Revolution had reduced functional facilities greatly.

In 1984, during our first surgical trip to Xian, one patient had a severe post-operative respiratory problem several hours after a relatively low-risk surgery and eventually succumbed. We were not notified of any problems until hours later. The team immediately focused on obtaining information, reviewing procedures, etc. We found that post-operative patients were routinely returned to their rooms to be watched by their families or, in the case of this patient, were placed near the nurses station.

After gathering data, we sat down with the Dean as well as the Chinese and HOPE surgical/anesthesia staff to consider next steps. We developed a plan to put together a modern, state-of-the-art recovery room in Xian that could serve as a model for all the hospitals we and other HOPE teams were working with.

Our plan was developed along with our Anesthesia team members, HOPE Nursing Program, Hospital Administration group and Chinese counterparts, as well as biomedical support from HOPE. It was prepared and presented to Dr. Walsh and HOPE coordinators, and was met with great enthusiasm. HOPE immediately started reaching out to equipment companies, biomedical volunteers, etc. Dr. Joanne Jene was very involved in this effort, both in Xian and Chengdu.

Fortunately, a new Stomatology Hospital Wing in Xian had just begun to be built, and we secured a large space next to the new operating rooms. Several nurses were recruited by HOPE for long-term stints (6-12 months). Mary Ann Bell was the first on board and coordinated training in Xian and Chengdu. Winter in Xian was difficult: cold temperatures, minimal supplemental heat, food shortages etc. Everyone lost weight!

As was often the case with the various Stomatology hospitals we worked in, competition was high, and very soon we were committed in Chengdu and Shanghai as well. HOPE biomedical volunteers came in shifts to put in equipment, and more importantly to train local hospital workers on how to maintain the equipment. As Dr. Walsh often said/preached, the best equipment in the world is worthless if it isn't maintained!

Within a year, the recovery rooms were up and running, and served as strong models for many other hospitals. The Ministry of Health took note and helped spread this far beyond our reach. This fortunately coincided with huge political changes supporting infrastructure improvement.

To this day, the recovery rooms are sources of great care and pride. The new Stomatology hospitals built in the last 10 years have, in my opinion, optimized recovery room accessibility to surgical areas in ways that are not often seen in the U.S. The HOPE Stomatology Program really led the way!

VIII. Sabbatical Year

Because of the excitement and impact being made with the HOPE Stomatology program, I decided to do a sabbatical in China with my family. A crazy thing for a surgeon to do, but there you go. My family included my wife Kathy, an RN on the first trip in 1984 with Dorothy Aeshliman; Hannah, age five; and Kali, age three.

It was a wonderful year! We lived mainly in Chengdu, in one big room in the old President's Guesthouse on the campus of the West China Medical University School of Medicine and Stomatology. Dr. Wang Dazhang was Dean. He had been the first exchange doctor in 1981 and went on to be Dean and Vice President of the entire University. He is still active nationally. The girls went to the Chinese kindergarten and school on the Medical School Campus, and were the only foreigners in a school of 500. They have fond memories; we revisited in 2012, reconnecting with some of their teachers and our friends and colleagues.

During the sabbatical, we travelled for HOPE to Xian, Shanghai, and Beijing for various ongoing projects. Living there was a daily adventure, beyond the lectures, conferences, surgery, HOPE Team visits, etc. We went shopping in the local open markets, went to a Christmas program which featured a Santa Claus at a newly reopened church, and biked everywhere (few private cars). Our girls were the only ones wearing helmets in a city of 6 million!

We travelled into the countryside with no real restrictions and made new friends in the Chinese community as well as the small ex-pat community. Our children helped bring lots of curiosity and smiles. We are still close with a number of colleagues we met then.

When we returned in 2012, the changes were stunning: private cars, new buildings, state-of-the-art hospitals. We visited old friends and made new ones. This China is exactly the same as in the 80's and 90's…but almost totally different! Very friendly, warm people – much more part of the bigger world.

IX. Random Adventures in China

1) 1983: First trip to China with HOPE. A totally different China from today.
2) 1988: Short trip to Lhasa from Chengdu. Brief opening in restrictions for foreign travelers.
3) Travels across Gobi Desert with family and Chinese colleagues.

X. Final Reflections

Dr. Walsh: A remarkable, charismatic, approachable, wise and caring man. Dr. Guralnick and I had multiple meetings with him, in Virginia, Boston etc. Sitting with him in his office, with pictures of Presidents Nixon and Reagan looking down, was quite moving and fun. He knew details of our program, along with a world view. We felt he genuinely appreciated what we were able to accomplish, and we could see the longer-term impact. The whisky was good.

Dr. Guralnick was my teacher and mentor. Over the many trips to China, meetings here and there, correspondence, developing and implementing plans, we became good friends in an interesting way. He and his wife Betty had an uncanny ability to interact with people that was genuine and full of caring. Dr. G took in the little interactions while seeing the big picture – all of equal importance. He remembered everything, and usually saw the positive side. He was willing and able to be critical as well. Dr. Guralnick was totally present until his recent death at 101. He and I did a documentary interview last year at the Harvard School of Public Health, covering the highlights of our years in China – before, with, and after HOPE. It is archived now at Harvard Medical and Dental Schools.

Project HOPE: What an opportunity this was – going to China in 1980, and extending that with HOPE. We experienced first-hand such tremendous changes – politically, economically, educationally and socially. This experience taught me that we all have the same basic needs and wants-to be respected, safe, do what we can to help others…and that friendship is not necessarily restricted by language, geography or politics.

The people who were part of the Stomatology Team were and are such wonderful, thoughtful, bright, accomplished and caring human beings. China/HOPE was a catalyst for so many connections on so many levels. Everyone, both American and Chinese, gave so much of themselves in so many ways, and we got so much back in return. Project HOPE also showed me both the strengths and weaknesses of a large, well-run organization. All of this is good.

I'm currently concentrating on a much smaller program, but with similar rewards. I started a small non-profit, FACES Foundation, to model comprehensive care for indigent, underserved cleft patients in Northern Peru – beyond surgery alone, in a locally sustainable manner. It draws on much of what I learned from HOPE, just on a much smaller, more personal scale.

I appreciate the opportunity HOPE/Dr. Walsh afforded me, and the wonderful friends that shared all of this. This changed my life!

Post Script

Unfortunately, the relative brevity of this Summary of Stomatology in China, does not allow for listing all, or even most the many individuals who donated their time, experience, expertise, and energy over many years to help solidify a truly world class, thriving Stomatology discipline along with our wonderful, remarkable Chinese colleagues and friends.

In the Appendix of this Monograph, HOPE has endeavored to list everyone who participated. Readers are encouraged to add others for subsequent editions.

3. Community Medicine Programs, Xian
Author: Arthur Kaufman

Introduction

In the mid-1980s, China's Ministry of Public Health estimated that the number of doctors practicing in China would have to almost double – from one physician per 1000 residents to 1.5-2 per resident – in order to meet the Alma Ata declared goal of "Health for All by the Year 2000." The Ministry gave high priority to health professions development for rural areas, where the shortage was particularly acute. It was in support of this national commitment that Project HOPE, in 1988, initiated a Community Medical Education program based at Xian Medical University (XMU) to expand rural medical education in China. The program was supported by the World Health Organization, in collaboration with China's Ministry of Public Health, with technical assistance from the University of New Mexico's WHO Collaborating Center for the Dissemination of Community-Oriented, Problem-Based Education. The program was conducted under Project HOPE's coordination until 2000, when it was taken over by the China Medical Board, which continued the program until 2005.

Background

In 1986, a National Conference, "Medical Education in China for the Twenty-First Century," was held in Beijing, hosted by the Ministry of Public Health and supported by the World Health Organization's Western Pacific Regional Office. I attended this conference, along with John Peabody, Director of Project HOPE's programs in China. The intent of the conference was to promote reform of Chinese medical education based on recommendations from a World Bank study.

At the conference, I presented the community-oriented, problem-based medical education model developed at the University of New Mexico. This caught the attention of President Ren Huimin of Xian Medical University, who indicated an interest in initiating similar reforms at his institution. He was concerned that the curricula for three-year rural medical schools were simply truncated versions of the curricula at five- and seven-year urban medical schools like XMU, and were thus inappropriate for the unique challenges faced by rural doctors. Dr. Peabody, representing Project

HOPE, participated in the meeting with President Ren and expressed an interest in HOPE being involved in further discussions.

In 1987, a meeting was held in Xian to propose the Community Medical Education (CME) project. CME would incorporate community-oriented, problem-based learning in a new curriculum designed to prepare doctors to address health problems of rural China. Subsequently, XMU sent three leaders to New Mexico to observe innovative medical education first-hand, after which Project HOPE arranged for a return site visit to XMU by representatives of HOPE and the University of New Mexico. XMU then developed its problem-based, community-oriented program CME Program. A proposal for funding, entitled "*The Education and Utilization of Doctors for Rural China*" was submitted to WHO and Project HOPE.

In 1988, with funding from Project HOPE, XMU began the CME Program. Two target sites were selected – the three-year doctor health schools in Hanzhong and Ankang in southern Shaanxi Province, an 18-hour train ride south of Xian. Commitment from the leadership at the Shaanxi Bureau of Public Health was secured. Implementation of the program began in September 1989. New CME textbooks were written.

In 1989, Dr. William Wiese, a professor of Family and Community Medicine at the University of New Mexico, became the first, long-term HOPE consultant from UNM at XMU. Dr. Wiese was on site from April 20 to June 3, returning in the fall of 1989 when the first CME classes matriculated at Ankang and Hanzhong. In 1990, during the first year of the project, XMU sent nine WHO-funded fellows from XMU associated with the CME project to the University of New Mexico for three months of hands-on training in community-oriented, in problem-based learning; in program evaluation; and in program management.

"Tell me and I'll forget;
show me and I may remember;
involve me and I'll understand."
(Chinese Proverb)

Evaluation of the first year of the program and planning for the second-year class then began. Rural community training sites were identified and rooms prepared for students in which to live and study. The XMU planning group modified the first-year curriculum based on the evaluation, and continued to develop collaboration between the two medical schools, public health leadership, and community leaders. I served as a HOPE consultant to the CME program along with Robert Waterman, PhD, a professor of anatomy at the University of New Mexico, visiting the program in July to monitor progress. A second long-term HOPE consultant, Dr. Bert Umland, was on site for six months beginning September 1990. The Project was now known outside China as an important educational innovation, and XMU was accepted as a full member of the WHO-affiliated Network of Community-Oriented Educational Institutions for Health Sciences.

Significance of the CME Program in a National Context

The CME program was linked directly to the goal of the China Ministry of Public Health of significantly increasing the supply of college-educated physicians practicing in rural areas, and its strategy of developing three-year, college-level training programs in rural districts, using the

faculties and facilities of the existing health schools. As conceived, the program had several characteristics which made it unique among the world's community-oriented educational experiments, including:

- A medical school curriculum built around actual community health problems which graduates would face in rural areas of Shaanxi Province.
- A medical school curriculum featuring the most advanced concepts in medical education: small-group, student-centered, and problem-based learning.
- A community-based medical education program in which a working partnership emerged between the health education sector (the medical school and its two rural branch colleges), the health care delivery sector (the Shaanxi Provincial Bureau of Public Health and its local health care facilities), and local government leaders.
- A program designed as an experiment, including random assignment of entering students and long-term follow-up of graduates, carefully monitored by an international team of expert evaluators.
- A program with a feasible design which is replicable on a national and international scale.

The program plan envisioned graduates who would be able to:

- Provide most health care services needed by people in rural China.
- Practice curative medicine appropriate to the technology available at their assigned rural level (from the county hospital to the village clinic).
- Be competent, self-motivated, independent learners.
- Be teachers of fellow health workers, patients, and the communities in which they serve.
- Perform community health needs assessment in partnership with community groups, taking into account pertinent social, political and economic forces in the target area.
- Design, implement, and assess the outcome of preventive community health interventions.
- Serve as rural-based physician role models and teachers for future health worker trainees.

The curriculum was specifically designed to train a new kind of physician with skills more relevant to the needs of rural China.

At the time, three-year physician training programs were not new to China. Of the 81 secondary schools in Shaanxi at the time the program was initiated, 11 were training three-year physicians. These doctors faced several competing objectives. First, they need to be trained in the most frequently encountered diseases, so that they can provide curative care. At the same time, they can be most effective if they provide preventive health care measures. In addition, they need to provide health care specific to the needs of the rural populations they serve – which requires ongoing evaluation of the area's health care needs, both preventive and curative. They are also confronted with the challenge of training in three years in the midst of an information and technology explosion.

The challenge, then, was to establish a training program for rural physicians which would be responsive to the changing needs of the community and to ensure the physician a unique professional role so that a highly qualified and well-motivated practitioner emerges.

CME Program Design

Curriculum

In addition to early exposure to primary care and clinical medicine, problem-based, student-centered learning was an important feature of the CME program. This broke from more traditional, memory and lecture-based curriculums prevalent in China at that time. From the very first day of medical school, CME students were presented with a series of specific clinical problems and asked to identify what they need to know to understand and manage each problem.

Cases were based on common medical and community problems found in Shaanxi Province. Cases were presented in a variety of formats, with real patients and community experiences gradually replacing paper cases as the curriculum progressed.

The students, as well as the teachers, were responsible for defining what is to be learned from a given problem and for seeking out the information they would need. While syllabi were designed for the curriculum, not all readings were prescribed. This is the definition of "student-centered" educational methodology.

Problem-based, student-centered learning was chosen as an appropriate method for achieving the goals of the CME program because it has been found to be the most effective method of preparing doctors for rural practice where resources are scarce and where they have to identify community problems and devise unique interventions not easily found in a lecture or textbook. For the rest of their professional lives, they would have to be creative, self-directed learners. Several innovations were designed by the faculty in these rural schools, including:

- **Weekly Continuity Clinics:** Many faculty believed experiential learning was key to the success of the community-based phases of the program. Thus, students participated in a continuity clinic once per week with a defined population for at least a year, actually living in that underserved community for some time. In this way, it was hoped that they would come to appreciate the richness and complexity of such work. It was also hoped they would become personally engrossed in broader issues impinging on community health such as access to health care and the role of poverty in illness.
- **Instruction in Oral Health:** A sample curriculum innovation involved the dentists in the Hanzhong Stomatology Clinic, who devised a special curriculum for the CME students. Because these students would be working in rural areas, often far from other health providers, they would be trained to teach community dental hygiene, clean teeth, drill and fill cavities, and extract teeth.

Program Evaluation

An evaluation committee composed of faculty from Ankang, and Hanzhong was created. This coordinating group developed evaluation strategies for all aspects of the program.

In addition to evaluating mastery of content in each basic and clinical science discipline, new evaluation exercises assessed the ability of students to:

- search for information in a variety of resources
- apply clinical reasoning to problem-solving
- share knowledge and teach others
- self-evaluate
- work effectively in the community

A tutor evaluation form was also developed to allow students, faculty observers, and the tutors themselves to assess their performance. The process evaluated behaviors facilitating maximum student-centered learning, including:

- skill at facilitating group discussion
- ability to guide students to pursue answers to their own questions
- ability to stimulate clinical reasoning
- skill at integrating basic and clinical science, medical school, and community

Outcome

I was recently in China with a WHO project where I made contact with Lily Hsu, Project HOPE's program director in China. She tracked down Dr. Lin Qi, former Lecturer in Anatomy and Leader in Case Development for the CME Project, who is now a Professor at Jiaotang University Medical Center in Xian. Dr. Lin reviewed the history of the program.

The program enjoyed the strong support of then-President Ren Huimin of XMU. He sent 10 of his faculty to live part time and teach in these rural medical schools in "harsh conditions" (including no hot water in the hotels). Dr. Lin felt that the program totally changed the faculty's perception of teaching and clinical practice. The teaching setting was enriched by clinical rotations in county hospitals under the guidance of trained mentors. Each year, 60 students enrolled in the program. Impressed with the program's progress, President Ren established three additional CME sites (beyond Hanzhong and Ankang) in Shanguo, Tongchuan and Baoji counties. Students at all sites graduated with associate degrees in rural medicine serving at the county and community health level providing primary care. Project HOPE sponsored the program from l989-2000. Then the China Medical Board took over the project and followed the same direction in rural medical education.

Unfortunately, according to Dr. Lin, after XMU merged with Xian's Jiaotong University in 2000, the program slowly phased out due to:

1) the transfer of the CME program to Jiaotong (for Jiaotong was unable to provide non-degree programs like CME); and
2) the fact that many local health schools in Shaanxi Province were merged or upgraded, sharply reducing the number of students who could participate in the CME program. Finally, the China Medical Board's funding ended in 2005.

Dr. Lin estimates that the CME program trained about 500-600 rural medical physicians, most of whom currently work in rural communities in Shaanxi Province. I had met Dr. Lin when I spoke in 2007 at a national rural medical education conference at the Jiujiang rural medical school, a program supported by the China Medical Board. Many rural medical school programs reported on their outcomes at that time. Dr. Lin presented outcomes of the XMU Hanzhong and Ankang programs. He believed that one reason they were so successful in retaining graduates in rural practice was the fact that almost all the students were from very rural communities and their training sites were equally rural. He said they were not that comfortable being in bigger cities that were unfamiliar. Most other rural medical schools were closer to larger cities which students visited frequently, and so many practiced in urban areas after graduation. The CME program received the distinction of a First Prize in Higher Medical Education Reform awarded by the Ministry of Education.

Lessons Learned

Lessons learned from the CME program have great relevance today. The Chinese people today are highly dependent upon hospitals rather than primary care facilities for most health services. This is very expensive and health outcomes are not commensurate with expenditures. As a result, health care is consuming an ever-greater percentage of the GDP, while the economy is slowing. The World Bank, WHO and China's Ministry of Finance recently completed a two-year study recommending that "China shift the healthcare system from the current hospital-centric model that rewards volume to one that is focused on health outcomes, centers on primary care and offers better value for money…primary care providers are seen as key to the reform's success." This suggests that the CME project was ahead of its time, and that the strategy incorporated into the program is equally pertinent today.

Publications Emerging from the Project HOPE CME Program

Kaufman A, Hamilton J, Peabody J. Medical Education in China for the 21st Century: The Context for Change. Med Ed (1988) vol 76 (5): 253-260

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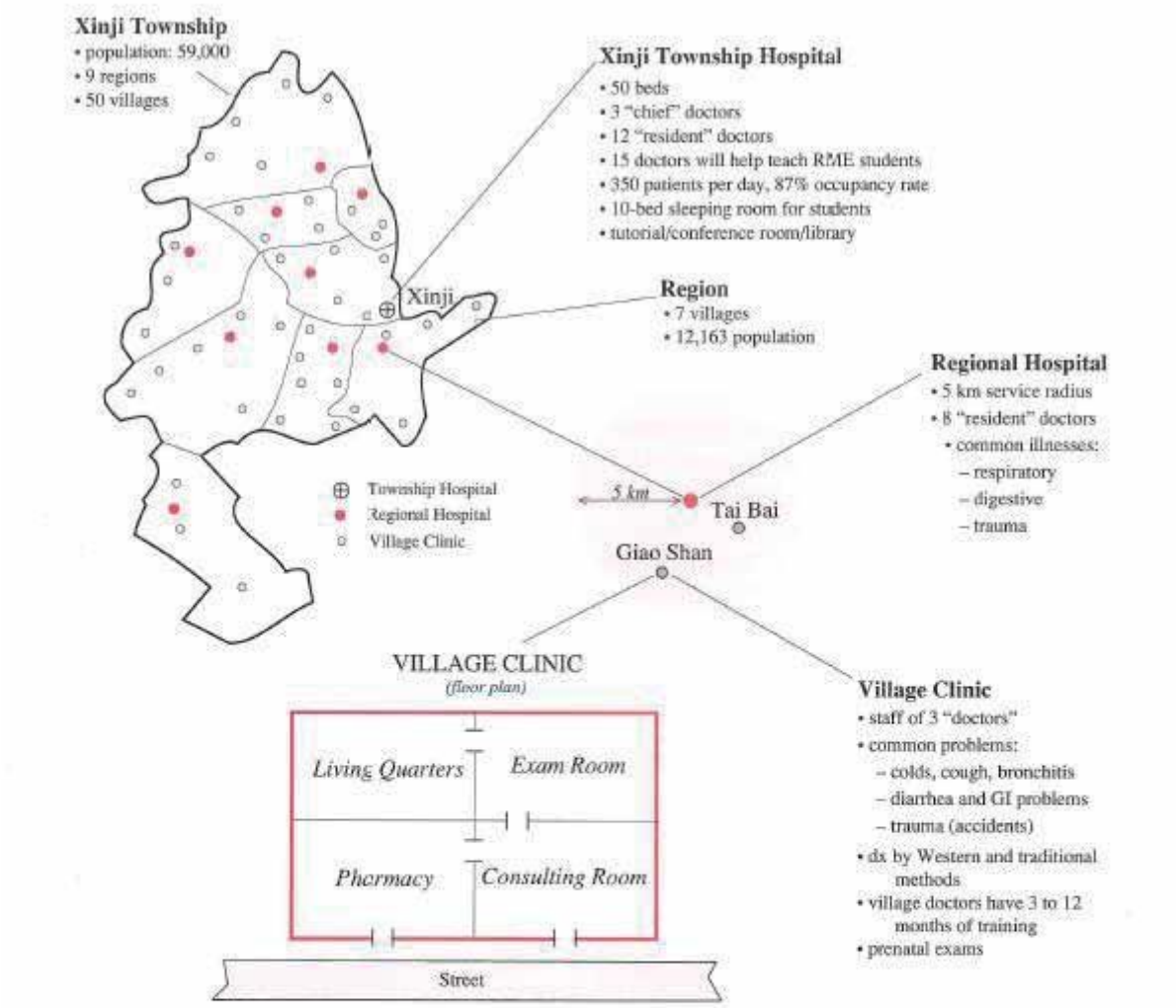
Tu M, Xia X, Cheng TO. One three-year medical school in China: a reform in Chinese medical education. Acad Med vol 69 (5) May 1994: 346-348.



Giao Shan Village leaders and Hanzhong CME students outside the Village Clinic.

SHAANXI PROVINCE

***SHAANXI PROVINCE** is located in northwest China. Situated 550 miles southwest of Beijing, it is also the gateway to northwest China. First settled over 8 000 years ago, the province is now home to 36 million people. Shaanxi is one of the poorest provinces in China, in spite of its many natural resources.*

Provinces outside Shaanxi served by the Xian Medical University (Ningxia, Gansu, Qinghai, and Xinjiang)

The more than 170 counties and municipalities in Shaanxi Province can be grouped into three geographical regions, each manifesting different local economies and distinct health care needs. To the North lies the Mongolian Plateau, where stock breeding and important resources in coal, oil, and other minerals are available in a harsh, cold, northern climate. The Wei Valley in central Shaanxi is a rich agricultural area, producing wheat and cotton. Industry has made great inroads in this region during the four decades since the communist revolution. In the South, along the Han Valley, lies a subtropical area with an agricultural economy based primarily on rice production.

C. Development of the Shanghai Children's Medical Center

1. Introduction and Overview
Author: William B. Walsh, Jr.

The Shanghai Children's Medical Center (SCMC) opened its doors in June 1998. It was established by the Municipality of Shanghai (the Municipality), Shanghai Second Medical University (SSMU), and Project HOPE. Today, it is a national training, research, and referral center providing care to more than 20,000 children annually.

This chapter tells the story of how an isolated agricultural zone at the edges of Shanghai became the location for China's first state of the art children's hospital. It traces early steps taken by SSMU and HOPE, and describes the dramatic roles played by former President Jiang Zemin and former Premier Zhu Rongi. It describes the spirit of collaboration among people and institutions worldwide, united in the goal of providing more and better health care to the children of China.

The Exploratory Phase

In 1988, due to the overall success of its China programs, Project HOPE considers two alternatives for extending its mission in Shanghai and China. One is to continue pilot capacity building efforts with several institutions in multiple China provinces. The other is to concentrate on a large-scale initiative: a new or remodeled children's hospital in Shanghai. HOPE chooses the children's hospital direction, subject to a feasibility analysis. Assuming that SSMU will take responsibility for construction, it is estimated that no less than 23 million dollars would be needed to train staff and provide major equipment for envisioned pediatric center.

HOPE President and CEO William B. Walsh, M.D., requests several leading multi-national companies to indicate their potential support through a letter of interest. Among the companies providing letters are 3M, Hewlett Packard, Becton Dickinson, and General Electric. The GE letter is from its Chairman Jack Welsh, a longtime admirer of the work of Project HOPE.

Maurice (Hank) Greenberg, then Chairman and CEO of AIG, is the next to agree to help. AIG has a major presence in China. AIG founder Cornelius Vander Starr developed his first insurance venture in Shanghai in 1919. Another step is subsequently taken when John Walsh, then HOPE's Vice President of Development, informally discussed the children's hospital idea with SSMU and Xin Hua Hospital leaders during the visit of HOPE cardiovascular surgery training mission. Both respond with enthusiasm, through advising that Beijing support would be crucial.

Dr. Walsh and Bill Walsh, Jr., Chief Operating Officer, visit Shanghai in the summer of 1988. Whereas HOPE has decided it can shoulder responsibilities for training and equipment, the question was whether the Municipality could take on the remainder. Their responsibility for acquisition of the land, construction, basic equipment and supplies, overhead, and recurring costs would far exceed HOPE's role in both amount and complexity. The last meeting is a working dinner hosted by the former Mayor of Shanghai, Jiang Zemin, then Chairman of the Communist Party of China. He and Dr. Walsh are seated next to each other (*see photo at right*). After dinner, all adjourn to an adjacent room for further discussions. Once all are seated, men with cameras and lights enter. Secretary Jiang Zemin announces on national television his vision of a modern children's hospital to be developed by the Municipality of Shanghai, Shanghai Second Medical University, and Project HOPE. This leads to the official documentation of cooperation memorandum (*Shanghai Government Document #79-1989 – see photo below*) issued in 1989 by the Shanghai Municipality, establishing the groundwork for HOPE and SSMU cooperation to build SCMC.

Leadership from the China side was also evident months later in the selection of the site for the new hospital. Municipal, SSMU and HOPE representatives visited several potential sites. Access, topography, and proximity to existing health facilities are among the factors considered. The HOPE team favors sites easily accessible by the Shanghai population. A report is forwarded to Mayor Zhu Rongi, recommending this course. Mayor Zhu instead choses Pudong, a district on the other side of the Huangpu River from Puxi, the historic center of Shanghai. It is an agricultural area dotted with aging farm building and crops in varying states of cultivation. There is only one bridge connecting it to Shanghai center. The new hospital will be among the first enterprises to be allocated land in Pudong, later to be known as the new Shanghai famous for today for its skyscrapers. The chosen plot will support the initially envisioned 250-bed and outpatient capacity as well as significant expansion as may be required.

On November 15, 1991, a contract between the Municipality of Shanghai and Project HOPE is signed. The Municipality formally accepts responsibility for the acquisition of land,

construction, the provision of basic equipment and supplies, and the recurring costs once the hospital is completed. HOPE agrees to provide advanced medical equipment valued at a minimum of 20 million dollars, as well as comprehensive training programs for the hospital's future staff. HOPE also agrees to provide architectural and engineering consultation to the architectural and construction companies retained by the Municipality. The Jiang Shan Engineering and Construction Company (JSE) and the Shanghai Municipal Institute of Civil Architectural Design (SMICAD) are appointed by the Chinese side to design and build the hospital. Consistent with the agreement, HOPE retains Neramore Bain, Brady and Johnson (NBBJ) to consult in the design and building process.

A groundbreaking ceremony to lay the cornerstone of the future hospital takes place in October 1992. Senior representatives from the China and HOPE side together plant shovels in the soil of Pudong to symbolize the project's launch. (*See photo at left, with Dr. Wang Yi Fei, President of SSMU; Dr. Chen Mingzhan, Minister of Health; and Dr. Walsh*). There is "no going back!"

A SMICAD staff member later describes the development of SCMC as akin to riding a tiger. All involved are on tiger's back, holding on with all their strength as it leaps forward. Anyone falling would surely be eaten.

Exchange and training programs begin in 1991. There are three initial goals:

- Mutual understanding of modern pediatric hospital features and practices;
- Relationship building among HOPE affiliated children's hospital experts, SSMU, and Xin Hua Hospital staff; and
- Training for SSMU/Xin Hua Hospital staff in key departments to be relocated at the new hospital: Cardiovascular Surgery, Pathology, and Radiology.

Challenge #1: HOPE Leadership Changes

An early challenge emerges when HOPE's Founder and CEO, William B. Walsh, M.D., is diagnosed with cancer. HOPE's Board of Directors Chairman Charles Sanders, M.D., appoints Mr. William B. Walsh, Jr. as President in 1991 and as CEO in June 1992. Dr. Walsh continues in an advisory capacity as his health permits.

Mr. Walsh brings in a new management team. The development of SCMC is declared Project HOPE's number one priority among global health programs that reach more than 35 countries. The

new team soon increases the estimated HOPE SCMC budget from the initially estimated $23 million to $37 million, so that more equipment and more training can be included.

HOPE organizes a global resource development effort for SCMC. An Asia Advisory Board is developed to approach multinational corporations based in Asia. Contributions from Chinese businessman and families in Hong Kong and San Francisco are pursued. HOPE sister foundations are established in both Hong Kong and Japan. Medical device manufacturers are of special interest because they can provide state of the art equipment and cash donations.

SSMU provides progress reports to stakeholders on the Chinese side. The Vice Mayor of Shanghai overseeing health care and the Minister of Health, Dr. Chen Ming Zhang, are kept informed, as is Mr. Zhu Rongi, the new Vice Premier of China (1993).

"A superior man is modest in his speech, but exceeds in his actions." (Confucius)

HOPE's new Vice President for International Programs, Bob Crone, M.D., authors an educational plan. It stipulates the preparation of key personnel in all departments of SCMC as the goal. While the new structure and its modern equipment of the hospital will greatly enhance China's medical capabilities, it is the training of hospital personnel which will make it possible for SCMC to provide the highest standard of medical care.

Challenge #2: Construction

As the 1995 New Year is celebrated in both United States and China, construction on SCMC has not begun. At the request of Mr. Walsh, Minister of Health Dr. Chen Ming Zhang arranges a meeting with Vice Premier Zhu Rongi to review SCMC progress.

Project HOPE CEO William Walsh, Vice Premier Zhu Rongi, and Minister of Health Dr. Chen Ming Zhang pose in the Beijing Zhong Nan Hai office following a SCMC progress review meeting in 1995.

After listening to the progress reports from HOPE and from Dr. Wang Yi Fei, President of SSMU, Mr. Zhu promises that the construction will soon start and that the SCMC project is to be included in China's ninth national 5-year plan. He says, "I expect that this modern hospital will be the best children's hospital in Shanghai, and certainly one of the best in Asia." Construction starts on July 13, 1995.

The Jiang Shan Engineering and Construction Company does an excellent job in laying the foundation, while SMICAD and NBBJ colleagues continue the planning for SCMC's interior. A system is put in place to assure that the building of the various departmental areas is in accordance with the architectural plans and international safety standards.

As areas are completed, HOPE and SMICAD architects and engineers certify that each section is built as planned. Any variances are discussed and rectified by SMICAD, JSE, and HOPE under the management of Dr. Wang Yi Fei, President of SSMU. The outstanding dedication of the Chinese side to getting the construction "right" is extremely important. For many team members, this is their first experience with advanced electrical and HVAC (heating, ventilation and air conditioning) systems required by a modern hospital.

In 1995, HOPE Pediatrician Frieda Law, M.D. arrives to direct education efforts preparing the hospital's future staff. She performs a myriad of teaching duties through patient rounds, case presentations, lectures, and clinical demonstrations for future SCMC staff. She also coordinates all on-site training activities performed by visiting HOPE teams and assures that preceptors in hospitals and health science schools receiving HOPE China fellows have clearly defined training objectives.

Challenge #3: Equipment

As the construction progresses, the Municipality pressures HOPE to demonstrate how it will fulfill its commitment to provide modern medical equipment, as called for in the agreement. Whereas HOPE had kept its Shanghai partners informed about equipment to be provided, seeing the equipment first hand would be more persuasive. Thus, it is proposed that HOPE send the equipment well in advance of the hospital's opening, where it would be safely stored.

HOPE explains that the medical device companies providing the equipment strongly prefer delivery as close to the completion of construction and opening of the hospital as possible. HOPE also assures its partners that it will meet and likely exceed its goals.

GE, the principal provider of Radiology Equipment to SCMC and the largest single donor to the hospital, is an example. As GE becomes increasingly confident that SCMC would realize its vision, they decide to equip the entire radiology department, proving about 14 million dollars in equipment installed by GE engineers just in time for the hospital's opening.

As the hospital's construction is entering its final phases, "fate" again intervenes. President Jiang Zemin visits the United States for a summit meeting with President Clinton on October 29-30, 1997. Mr. Walsh and his wife Jane attend the White House State Dinner celebrating President Jiang's visit. Through a series of follow-up steps, Mr. Walsh proposes that the inauguration of SCMC be included in the return summit meeting in China scheduled for June 1998.

In early 1998,
Shanghai Vice Mayor Madame Zuo Huan Chen
inspects SCMC,
as construction nears completion.

As planning for the Summit in China proceeds, the pace of SCMC construction, the installation of equipment, and HOPE training programs for SCMC staff accelerates. The SCMC outpatient department opens on June 1. Soon thereafter, HOPE and its China partners receive formal notification that the inauguration of SCMC will be part of the First Lady's itinerary. The "Tiger" that the Chinese partners and HOPE had been riding since 1988, when Jiang Zemin announced SCMC's development, was soon to arrive.

On June 30, 1998, the Vice Mayor of Shanghai, Madame Zuo Huan Chen, and Hillary Rodham Clinton, the First Lady of the United States, open SCMC with a ribbon-cutting ceremony. Seated on the dais are West Virginia Senator John D. Rockefeller; the President of Shanghai Second Medical University, Mr. Fan Guan Rong; Bill Walsh, Jr., President and CEO of Project HOPE; and Dr. Chen Shu Bao, SCMC President.

In her opening statement, the First Lady remarks:

"This medical center is the result of an extraordinary public-private collaboration between our two countries, the city of Shanghai, Project HOPE, the Shanghai Second Medical University and USAID's American Schools and Hospitals Abroad, as well as the generous contributions of many Chinese, American and other international businesses, foundations, and individuals."

The value of HOPE's contribution to SCMC by this time has exceeded 37 million dollars. The value of the Chinese side contribution is doubtlessly higher, taking into account the land in Pudong provided, design and construction expenses, basic equipment and supplies, and recurring costs.

From the beginning, the heart of the HOPE-SCMC partnership has been education and training. By 1999, at least 250 of the key SCMC staff have received through HOPE either external fellowship or China-based education. In addition, SSMU has provided several external fellowships through other relationships.

By 2017, SCMC has grown from the original 250 beds to 640 beds, through the addition of Cardiology and Oncology towers. The hospital will reach 1,000 beds by 2019, when the comprehensive Patient Tower is completed. HOPE continues to provide assistance in periodic contributions toward equipment and training. SCMC now has its own relationships with children's hospitals, corporations, and research centers throughout the world. HOPE is proud to have played a role in the remarkable emergence of SCMC as a world class medical center, from what was once a cabbage field on the other side of the Pudong River.

The development of SCMC and all China programs are a sterling example of HOPE's mission to help people help themselves. HOPE and its host country partners select and implement goals together. Full responsibility is gradually turned over to the host country partner, and new joint efforts are developed. 2018 marks the 35th anniversary of our work together.

On April 5, 2018 – Chinese Memorial Day – SCMC Presidents, Vice Presidents and staff gather to show their respect to Dr. Walsh in the quiet and beautiful garden of SCMC.

A Special Visit

The Walsh family was very touched when Wang Yi Fei, President of Shanghai Second Medical University, and his wife requested to visit my mother and father during the final stages of his fight against cancer. My parents were happy to welcome them in their home. My dad very much enjoyed hearing from Dr. Wang that the “dream" of the Shanghai Children’s Medical Center was going to be realized. He told Dr. Wang that he would have to view the opening from heaven.

Dr. Wang and I worked closely together while he was President of SSMU. We too had a close bond, sharing the responsibility of sustaining the alignment among the many institutions and people who contributed to SCMC’s development.

William B. Walsh, Jr.

April 26, 1996
Dr. Wang Yi Fei and his wife Ms. Yunfeng Zhu visit Dr. Walsh, Helen Walsh, and Bill Walsh.

2. Planning and Construction
Author: Ralph Allen

The Shanghai Children's Medical Center

It was spring 1991 when we got word we were being considered as the consulting Architect for a ground-breaking Children's hospital in Shanghai. It was with Project HOPE and their Chinese partner, the Shanghai Second Medical University. I had never worked internationally before and found the prospect exhilarating albeit with some trepidation of the unknown. I truly had no idea what was to come.

In June of the same year we were hired to assist Project HOPE and the Chinese government to design, construct and commission the Shanghai Children's medical center – the first modern, tertiary care, pediatric teaching hospital in Asia. "A modern hospital with Chinese characteristics." On our first formal team visit to the site Madame Zhou, my counterpart with the Shanghai Municipal Institute of Civil Architectural Design (SMICAD), one of the largest Architectural firms in China offered this idiom:

"Well, we are all riding the tiger's back now."

Staying on the tigers back was a wild lunging ride with success at the end only if one could hang on. Falling off along the way one risked being eaten by the tiger. We were indeed all in this together.

Dr. Wang Yi Fei

The stakes were high with this project being ranked as one of the top five most important projects by the Central Government in Beijing and as the first greenfield brick and mortar endeavor for Project HOPE across their long history. We also were the third expert consultant being asked to work with our Chinese partners to create this "Modern Hospital with Chinese Characteristics". Dr. Wang Yi Fei was the president of the Shanghai Second Medical University at the time of our selection and served in that function through most of the design phase before moving on to the World Health Organization. He coined this term, and it proved to be a solid guiding principal throughout the design and construction efforts. He was a strong intellect. His English was excellent, largely self-taught watching American television and reading English newspapers with a Chinese-English dictionary companion. He was directly involved in all of our design sessions and held the final authority on all decisions, major and minor.

Our typical design sessions would last several weeks and were usually held at SMICAD's offices in Shanghai. We would run through the myriad of details involved at each stage of the project, often making modifications to our drawings and specifications during and between each day's work-session. At the conclusion of each of the weeks-long efforts we drafted a confirming agreement was negotiated and finalized directly with Dr. Wang Yi Fei. These became the foundation stones for the entire project and its success is based largely on these documents and the weight they were given by the entire team.

A Pattern of Building

Our challenge was to find a planning strategy that would organize hospital departments optimally for public, patients and staff while tapping a pattern of building that would resonate with our Chinese partners. Modern hospitals are generally organized in circulation layers relating to acuity and the degree of patient invasiveness moving from less to more from the front door to the depths of the plan. This is due in large part to the increasing importance of controlling cross infection between zones of increasing acuity made possible largely with the advent of modern HVAC and Electrical systems. These systems were relatively scarce in Asian hospitals prior to this time as were the modern planning patterns they engendered.

The solution was deceptively simple. Spend any time in any Chinese city and you see the common practice of covering the alleys and minor roads between individual buildings with a variety of spanning skylights, awnings and retrofit utilities that were never planned for the original buildings. These spaces between buildings teem with life, street vendors and vibrant and interesting markets. This was to be our approach to the new campus.

I remember presenting this strategy on our second design session to a large room filled with our Chinese partners showing how each of the major departmental areas were generously housed in their own individual buildings; layered in a manner where triage and the initial patient services were toward the front of the plan and the critical care areas were situated further into the overall facility; and that the space between the buildings was leveraged for circulation of personnel, patients, and utility distribution pathways. Were we just another foreign expert imposing our ideas on their facility and indirectly on their

culture? With relief, following a few moments of thoughtful silence, Commander Wong stood up and stated clearly ***"we do that here!"*** and we were off and running.

PROJECT HOPE EXPERTISE – A significant cadre of consulting experts from many august institutions were involved well before, during and to follow the completion of this modern hospital. Their contribution cannot be overstated in the success of this venture well into China's future in delivering quality healthcare to their youngest citizens.

Commander Wong Dehui

We first met "Commander Wong" on my initial visit to Shanghai, before we had been hired. I had been able to make a quick trip to Shanghai during a two-week design and construction fair that I had been attending in several Japanese cities for NBBJ; my first trip overseas ever. The HOPE team and I made the most of our few days together. I was to learn later that this visit, made in advance of our interview contributed to our selection as the lead US consultant. Shanghai, at that time, was just building the first ring road, and the streets from the airport were choked with auto traffic and home to millions of bicycles. It took us several hours to make the trek from the shanghai airport to the hospital site. The Hope van, sans air conditioning other than open windows allowing the air at 90+ degrees and humidity to flow through, offering little relief, was a pressure cooker and test of new arrivals. I apparently passed muster with the team as we were awarded the project a few weeks later following our interview at Children's hospital in Seattle.

Also, during this first visit, I had a chance to meet with our future Chinese partners, the meeting being led by one "Commander Wong," who was assigned to oversee the entire SCMC construction project for the Shanghai Health and Education Bureau. Mr. Wang was an older man, rumored to have been a commander in the Red Army, lightly balding on top with mildly wild wafts of graying white hair flying about the sides of his head, punctuated with deep set eyes and pronounced white eyebrows. He sat forward at the head of the table running the meeting with strong voice and clear eyes. A commanding presence indeed. We spoke of goals and cooperation during this meeting, and one of his memorable quotes, suffering perhaps in translation was: ***"and you will have many opportunities to cooperate."*** I didn't know whether to be honored or afraid. Perhaps a little of both?

In many subsequent meetings, he and I would tour the project during construction and one of his favored methods of non-verbal communication was the shoulder lean and nudge while gesturing with a chin nod toward some feature of the construction. I am a fairly large fellow, taller and heavier than Commander Wong by clear measure…This guy was a rock. There were a few times where I would playfully nudge him back…no budge. We always parted with a hand shake/bow and a smile. He was a prince of a fellow and it was my honor to work with him.

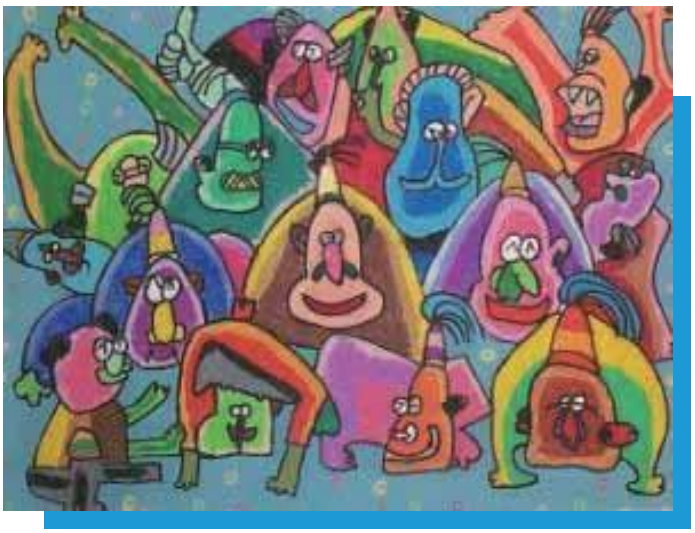
Not only was he one of my favorites, but his clearly expressed support was so important at this meeting where our concept was presented to the larger team. When I say that we were off and

running, consider this: In four years' time we planned, designed, engineered, received approval for our designs, constructed and commissioned a 240-bed green field modern hospital, the first ever built to this level in China. That's rocket fast.

Madam Lin Meihong

Our NBBJ consulting team consisted of Bob Dooley, a very knowledgeable medical planner that had been with NBBJ for many years, Wang Yu, an extremely talented native Chinese Architect joining the NBBJ ranks a year or so prior to beginning our work with SCMC and myself. HC Yu and his team from Virginia providing all the MEP/HVAC engineering for the facility carried to a design development level. We were the tail wagging a very large canine and while we had the advanced knowledge of how a modern hospital needed to be planned and engineered, it was the strength of these local Engineers, Architects and Contractors that would make this dream a reality. They, with their cultural self-knowledge and remarkable capacity to absorb new and at times challenging ideas would be the fuel powering this effort across the finish line and to a bright and meaningful future for the children of China.

There were many examples of this dynamic between our respective insights and capabilities, but none recalled more fondly than the exchanges between Madame Lin Meihong, the SMICAD electrical engineer, and ourselves over our many months working together. Madame Lin was of slight frame, powerful voice and fierce eyes that would burn bright when ignited. At one such work-session I was attempting to present a brief overview of our progress on, among other things, the sophisticated electrical power supply and distribution strategies, stumbling through system redundancy, the relative economics of power generation in off hours, and the associated advantages of ice storage when Madam Lin stood up, gained the dais, motioned me to the back row stating firmly, ***"I'll take it from here."*** I acquiesced, knowing my better, and left it to her to finish with a concise and informative description for the record of those assembled officiates.



Some many months hence, with the hospital under construction she was stricken with a terminal illness. On my last visit to her bedside we clasped hands warmly, she looked at me with those clear burning eyes and asked: "We really did it, didn't we?"… "We sure did Madame Lin, thanks to you." She was gone sometime later. We risk no cultural bias whispering our nickname for her amongst ourselves during our working relationship and in her fond remembrance. The "Tiger Lady" would not be trifled with nor soon forgotten.

Madam Zhou Qiuqing

Yet another clear example of this dynamic is the structural engineering of the facility as explained to me by Madam Zhou Qiuqing, SMICAD's team leader for the project. Her shared insights on the many peculiarities of working in China, historically, in the present time and in this particular region of china were invaluable as they were fascinating in expanding our awareness and general knowledge of this remarkable venture. The layout of the campus as described earlier, was comprised of multiple two story independent structures, each relating to a given department or specialty. The largest element was the nursing tower close to the rear of the site, rising 5 floors above grade, running the entire width of the campus and sitting atop a full-length basement which housed the bulk of the advanced electrical and HVAC systems serving the hospital.

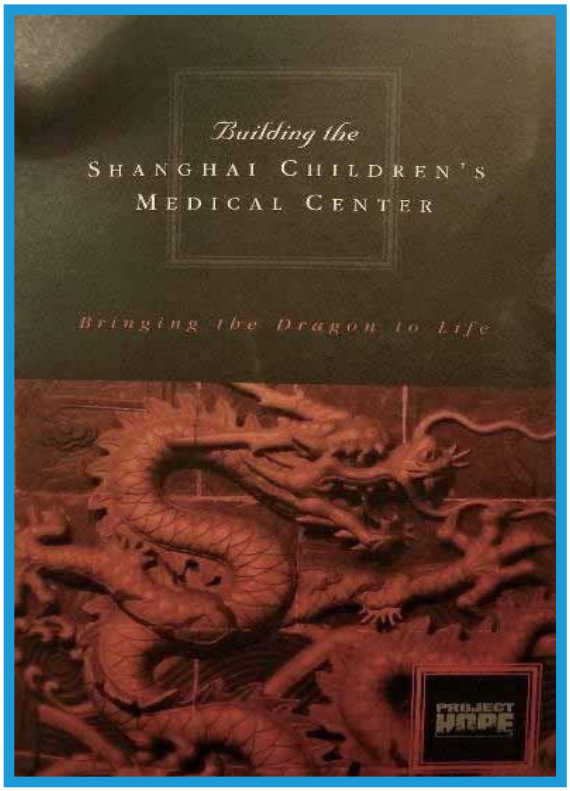
The site is in the Pudong, which is river valley land adjacent to the Huang Pu river, and is largely comprised of wet and unstable soils. Supporting the smaller buildings was not difficult, and I can't remember if it was with pilings, large spread footings or foundational mat. The kicker though, was the nursing tower. Given its size, and the relatively unstable and wet soil in the Pudong, and the depth of the basement at about 30', this element was designed using displacement rather than traditional foundation supports. The designed "hull" formed of the cast in place concrete slab and sides of the long basement floats the building, like a boat. Of equal interest was Zhou Gong's description of the round table review sessions held by SMICAD and several government experts to arrive at this decision as the optimal method for physically supporting the campus. These were apparently intense and open explorations among the many assembled experts to arrive at these conclusions as a method to assure a well-considered end product. She approached all of our interactions similarly with the intelligence of a seasoned Architect and the adroit touch of a diplomat. Smart inclusive process – quality outcomes.

WATER – A great example of balancing the highly advanced technologies and planning theories in the modern hospital with simple, traditional building methods. The domestic water supply system for the hospital uses gravity to generate the required supply pressures for daily use. Atop the nursing tower is a large domestic water cistern that is filled in the off hours when electricity rates are less expensive for running the pumps lifting the water to the top of the campus. The cistern is sized and placed to provide for the projected daily water needs for the facility by gravity. The SCMC cistern is cast in place concrete with a pvc liner…but you get the idea.

Communication

This was a bi-lingual and bi-cultural team. Our mutual command of each other's language ranged from non-existent (moi and Bob) through marginal to exceptional in a few rare cases. Wang Yu was a native of the Hebei province in northern China, educated both in Beijing and Notre Dame and was invaluable both as a very talented Architect and in helping us understand the regular back and forth in our joint work sessions. Tom and Cindy Mclean were the managers of the local HOPE office in Shanghai, and had spent some many months in language immersion schools in Taiwan and Beijing. Tom's command of the Chinese language went well beyond Mandarin and into at least one or two local dialects. Our work sessions would, at some point include a large meeting with hospital, university and government officials reviewing progress made and discussing positions on any challenging issues. At one such meeting, desiring some privacy to discuss a particularly sensitive issue, rather than asking us to exit beyond earshot, Wang Yi Fei led the meeting of 35 or so officials through several dialects to the point where Tom was unable to make the meaning of the discussion. A veil of privacy woven in an obscure spoken word for a discrete consultation meant only for those able to follow. Remarkable, and profound evidence of a deeply agile intelligence on the part of the room and that of the many beyond. I believe that some "in the west" may have viewed the less advanced technologies and their related educational levels as a mark of a lower intelligence on the part of our Chinese contemporaries. This would be a serious misjudgment; one that we never entertained from our first day on the job and was reinforced every day in our entire time working together.

As we neared the completed design and readied for construction Wong Yu and I prepared a small bi-lingual manual for use by the many parties that would be responsible for building this project – constructing, equipping, commissioning and operating a modern hospital is complex at best, and many of those to come would have little to no familiarity with the systems involved, or their why's and where-fore's in the Hospitals' functioning. We likened a modern hospital to a living organism describing each of the major systems and their contribution in bringing this functioning organism to life. "Building the Shanghai Children's Medical Center – Bringing the dragon to life" was distributed broadly amongst the team, and if nothing else helped me organize my occasional guidance during construction to place questions and queries in their proper context. I will allow that some loosely bridled enthusiasm for the Chinese culture may have underpinned my choice of the dragon as the beast we were bringing to life. Be that as it may, I believe that the effort, in some small way, increased the broader understanding of our joint efforts to create the first tertiary care, pediatric teaching hospital in Asia. "A modern hospital with Chinese characteristics."



Dr. Chen Shu Bao

We were regularly involved in the oversight of the building's construction and outfitting with a role in the selection of the contractors, review of all material submittals, especially those in the highly technical areas such as the operating theater and Radiology where the bulk of Project HOPE's 30m USD in state of the art hospital equipment was housed, and advised on virtually every other area of the facility. Every decision here as during the final design was overseen by Dr. Chen Shu Bao, Director of SCMC. He was a pediatric cardiologist by training and still held office visits while shouldering the massive and delicate responsibility of balancing the needs of this facility with the requirements of the overseeing authorities and deeply rooted cultural traditions. One such "at odds" tradition equates open windows and "fresh air" with a healing environment vs a modern hospital requiring a controlled interior air environment. Through the use of positive and negative pressure balancing between critical areas, filtering and tempering intake air a modern hospital controls cross contamination between critical areas, and delivers clean filtered air to the patient areas.

I will never forget he and I standing next to the nearly completed surgery wing discussing whether the windows in the operating rooms should be permanently fixed or openable, albeit with difficulty requiring the removal of screws making it a less casual happenstance. I know that he clearly understood and supported the reasoning for a controlled environment, especially in the operating theater where open heart surgeries would be performed on very young children; but could read in his elevated stress his answering to others that may not.

This balance between competing influences is one that we in the profession are all too familiar with, and I often marveled at his aplomb in walking this fine line. I once asked how he managed the predictable stress in maintaining this balance and he explained to me how on his long and crowded bus rides between his home and the campus, he would use the time to exercise. He was indirectly, and without much ado introducing me to Chi exercises, often practiced in static body positions designed over the centuries to encourage the flow of the body's' Chi energy. I have studied these techniques throughout the ensuing years with admittedly irregular practice, enough to understand their value if not achieving their full benefit. One more seemingly unrelated door of understanding opened during this venture that remains of lasting value in my life.

Outcomes

On June 1, 1998, we attended the dedication of the new hospital with a speech given by Hilary Clinton during the summit meetings between Presidents Clinton and Jiang Zemin's held at the same time. I will herald the hospital's completion with these brief personal vignettes:

I attended the very first open-heart surgery performed at the hospital on a very small premature baby. I was in the operating room, fully gowned and staying out of the way, for the entire procedure, and I could imagine no more profound and deeply gratifying evidence of our mutual success than this.

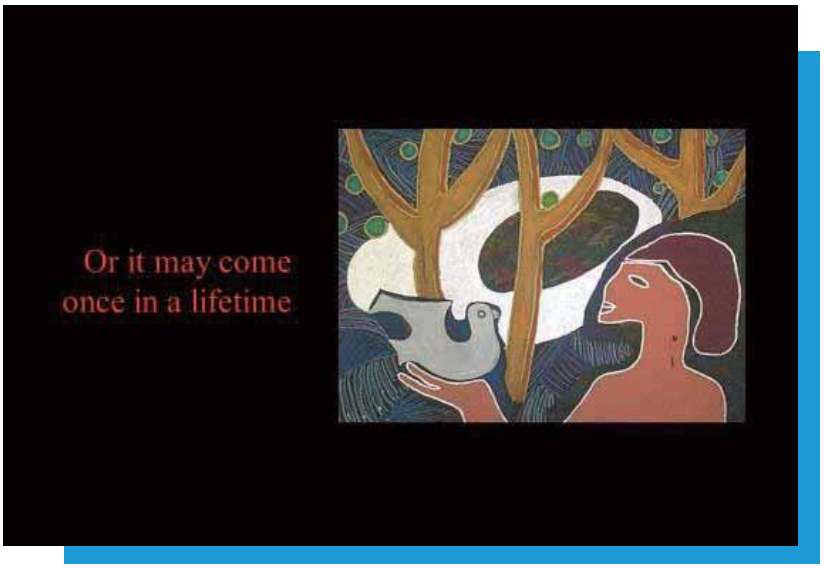
During the final commissioning of the building I noticed examples of children's art showing up on the walls of the main atrium and hallways throughout the facility. On closer examination I was gapemouthed at the age of the artists, ranging from 4 to 8 years old, balanced against the

sophistication of the young artists' imagery. June 1st is national Children's Day in China, and every year artistic contributions were culled and judged as part of the festivities. Art education is highly valued in the Chinese education system and the results of this emphasis were clear. We curated a collection of the best of these examples and I made many presentations back in the States of the "Art of China's Children" ultimately raising many thousands of dollars for Project HOPE and the SCMC with the sale of the original works at a fund-raising ball held in NYC a few years later. While raising needed funding is important, my primary fascination was in allowing largely western US audiences to experience a small sampling of a cross cultural disconnect, in this instance between our pre-conceived notion of kids' "refrigerator art" and the work of these young Chinese artists.

Conclusion

This narrative is organized around several of the key people we worked with and select stories of our time together. There were many, many others from both "sides" that made this experience possible and those mentioned here are but a few.

Openly exploring a "cultural disconnect" between variant populations and our relative pre-conceptions of one another was at the core of our mutual efforts, of our ultimate understanding of one another and to our shared success with the finished results. It is with some reasonable certainty that I hold this basic tenet to be broadly applicable - then and now.



La Liang; 10 year old boy; human and life

3. SCMC Pediatric Cardiovascular Surgery Program
Author: Dr. Richard A. Jonas
Adapted from *Pediatric Cardiovascular Surgery*

The Shanghai Children's Medical Center (SCMC) has become one of the busiest pediatric cardiac programs in a freestanding tertiary level pediatric hospital in the world. This paper will describe some personal reminiscences of the remarkable efforts of so many selfless individuals that led SCMC to where it is today.

Personal Background

In late 1983, Dr. Aldo Castaneda, chief of cardiac surgery at Children's Hospital in Boston, and William E. Ladd, Professor of Surgery at Harvard Medical School, invited me to join them as junior associate on the staff of the Children's Hospital Boston. I was at the time his chief resident working with both him and Dr. William Norwood. Dr. Norwood had recently been appointed as the new chief of cardiac surgery at the Children's Hospital of Philadelphia.

I was familiar with the fact that Dr. Norwood had been closely involved with Project HOPE and the development of pediatric cardiac surgery in Krakow, Poland. I was also aware that Dr. Norwood had been invited by Project HOPE to travel to China in 1983, together with Dr. Steve Sanders and Dr. John Murphy, who were both pediatric cardiologists in Boston, to explore the possibility of establishing a similar program in the People's Republic of China. Not long after he returned from that preliminary visit, Dr. Norwood sat down with me and suggested that not only should I take over his staff position in Boston but in addition suggested that I should take over the role of team leader for the new pediatric cardiac program in Shanghai. I agreed to meet with Bill and John Walsh, the two older sons of the founder of Project HOPE, Dr. William B. Walsh. They had little difficulty convincing me to begin the work of putting together the equipment and personnel needs for the first working team visit to Shanghai.

It was easy to understand why I found the allure of China impossible to resist. As a young boy growing up in Australia, my grandmother had told me stories of my grandfather's global wanderlust that had taken him as a young journalist from Adelaide, South Australia, to work in Chicago for several years, and on his return trip to visit Shanghai. The timeframe was the 1930s, when Shanghai was known throughout the world as the Paris of the East, a fascinating mix of European and Chinese culture.

As I entered medical school in the late 1960s, Australia was just as deeply embroiled in the Vietnam War as the United States. After 1966 and the onset of the great Cultural Revolution of Chairman Mao, China had become a complete enigma to Australians and was greatly feared. This all had important personal implementations for me as I undertook three years' mandatory ROTC military training, much of it taught by regular Army soldiers who had just returned from harrowing experiences in Vietnam. In the late 1970s following Mao's death, and as I undertook my surgical training in Australia and New Zealand, tantalizing glimpses from within China began to appear with news coverage of the activities of the Gang of Four.

By the late 1970s, Australian surgeons had begun visiting China in an effort to help overcome the consequences of the Cultural Revolution. I had heard stories from Dr. Harry Windsor from St. Vincent's Hospital in Sydney, and Dr. Robert Mee from the Children's Hospital in Melbourne, of the remarkable lack of surgical facilities that existed at that time. We gradually learned that not only had teachers in the universities and schools been targeted during the Cultural Revolution, but advanced technical specialties such as cardiac surgery were singled out as elitist in many hospitals, and closed down. For all intents and purposes, medical schools had ceased to function for many years during the Cultural Revolution. And all of this was occurring in a country where the annual birth rate was estimated to be 18 million. By my calculation, that meant that 144,000 children were being born each year with congenital heart disease. And yet none of these children had received adequate or even any surgical care during the years of the Cultural Revolution itself.

By the late 1970s, only the most courageous surgical pioneers were able to re-establish open heart surgery. So, when John and Bill Walsh spoke to me in 1984, it was quite clear that there was a huge need within China for surgical education. It seemed obvious to me from the beginning that this was an opportunity as a surgical educator to make far more of an impact than I would ever be able to achieve training surgical residents in the United States. Surely this was the mission of an academic cardiac surgeon. Coming from a family where my parents had demonstrated through their own personal examples the importance of community service, it was an easy decision to begin a long-term commitment with Project HOPE, despite the risk it might pose to my own academic advancement in Boston.

Project HOPE in China

In the early 1980s, Dr. Walsh was invited by the Chinese government to establish a number of health training programs throughout China. At one point, as many as 12 Project HOPE programs were functioning throughout China. But what was clearly apparent from Dr. Walsh's very first visit to China on entering pediatric hospitals was the huge number of unoperated children with congenital heart disease. In China, as it is in the west, congenital heart disease is the most common birth defect, and because of the many years of turbulence there were huge cumulative populations of children in all hospitals who were suffering from the serious secondary consequences of congenital heart disease. Dr. Walsh made a commitment that the management of pediatric heart disease would be the primary focus of Project HOPE in China, and from the beginning his sons, Bill and John, put enormous personal effort into the development of the program.

Project HOPE already had a well-established track record in the management of children with congenital heart disease when it began exploring a potential role in China. In the mid-1970s, as Poland and much of Eastern Europe was beginning to emerge from years of Soviet domination, Project HOPE was invited to assist in the development of a pediatric cardiac program in Krakow, Poland. Dr. William Norwood, who like Dr. Aldo Castaneda had training at the University of Minnesota, became Dr. Castaneda's junior associate at Children's Hospital Boston in the mid-1970s. He and John Murphy, a pediatric cardiologist in Boston, were invited by John Walsh to set up the cardiac program in Poland. They made many visits to Krakow during the late 1970s. By the early 1980s, this program had become so successful that Project HOPE supported the construction of a pediatric hospital where the major focus would be the management of congenital heart disease. The Polish American Hospital in Krakow has been a highly successful center since

its opening. Dr. Norwood and Dr. Murphy and many other dedicated physicians, nurses and healthcare technicians continued to support the pediatric cardiac program in Krakow for many years following the opening of the hospital.

Project HOPE and Shanghai Second Medical University

Following the signing of an agreement between Project HOPE and the central Chinese government to establish a long-term collaboration including pediatric cardiac surgery, one of the first tasks confronting John and Bill Walsh was to decide on a strategic partner for the pediatric cardiac program. After reviewing several of the great academic institutions with strong histories of clinical care, education and research, they settled on the Shanghai Second Medical University (SSMU).

SSMU was incorporated in 1952 as the Shanghai Second Medical College, formed by the amalgamation of several medical schools under the direction of the new communist government. St. John's University School of Medicine, which had been established by American missionaries in Shanghai in 1879, had grown to become one of the strongest in China and was the core of the new Shanghai Second Medical College. It was amalgamated with the medical school of the Universite L'Aurore, which had been established in 1903, and the Tung de Medizinische Akademie, which had been established in 1918. This multicultural background of the Shanghai Second Medical College reflected the origins of Shanghai, which in addition to its traditional heritage had undergone rapid development as an international treaty port after the Opium Wars of the 1950s. Even today, there are traces of French heritage in the area around the Jin Jiang Hotel where we often stayed on early team visits to Shanghai or around the old British Embassy which was located next to the Peace Hotel on the Bund, the remarkable collection of early 20th century buildings that still ace the Huangpu River but today are dominated by the massive skyscrapers of the Pudong area across the river.

In the early 1980s, SSMU had made a strong recovery from the setbacks of the Cultural Revolution. It had a number of major teaching hospitals around Shanghai, including the Xinhua Hospital. Although this general hospital with a pediatric wing was situated in one of the less affluent areas of Shanghai, nevertheless a remarkable cardiac surgeon, Dr. Wen-Xiang Ding, was working hard to re-establish open heart surgery. Originally from the north of China close to Beijing, Dr. Ding was not only trained as a surgeon but also was a remarkably innovative bioengineer. During the years of the Cultural Revolution, Dr. Ding, like most surgeons and particularly cardiac surgeons, had been sent to a rural area as a "barefoot doctor." He was allowed a small black bag with no more than 12 instruments. But as the Cultural Revolution began to wind down, he came to Shanghai and worked diligently to develop a heart lung machine. In those days, no foreign imports were allowed into China, so he had to work from reports in outdated medical journals that had been smuggled into China and to use his own innovation. Laboratory facilities, blood banks and intensive care units were only in the most primitive stages of development when he began undertaking open heart surgery at Xinhua Hospital.

When Drs. Norwood, Murphy and Sanders, from the preliminary Project HOPE team, visited Xinhua Hospital in 1983, Dr. Ding was undertaking surgery without any real-time display of the EKG and no electrical transducer pressure monitoring. A single paper EKG recorder provided the only monitoring that was available. There were no oxygen cylinders, oxygen was stored in large

inflatable pillows that provided only very limited time for transport to the intensive care unit. Because the operating rooms were in a different building from the cardiac ward and early ICU, patients had to be carried upstairs on a stretcher from the operating room across to the cardiac ward. Despite these and many other incredible challenges, Dr. Ding was managing to achieve some survivors with ASDs, VSDs and infant tetralogy of Fallot. Based on the rich academic tradition of SSMU, and Dr. Ding's incredible drive and enthusiasm to develop cardiac surgery, John and Bill Walsh made a decision to establish a collaboration with Dr. Ding and the fledging cardiac program at Xinhua Hospital.

Another important reason for selecting the pediatric cardiac program at Xinhua Hospital was the strength of the pediatric cardiology program. The program had been led for many years by Dr. Liu. Dr. Liu was very ably supported by Dr. Shu-Bao Chen, who was already incredibly skilled in the emerging field of 2-D echocardiography. Dr. Chen was soon to succeed Dr. Liu as the chief of the department and subsequently played a major role in the administration of Xinhua Hospital.

First Team Visit

In 1984, a preliminary team visit to Xinhua Hospital was made by a small group to establish the equipment and personnel needs for the establishment of pediatric cardiac surgery. Dr. Norwood's advice to me was clear and simple. He told me "take everything." For many organizations, this would have been a remarkably daunting proposition. Since a pediatric cardiac surgery program requires a full service pediatric cardiology diagnostic program as well as a pediatric cardiac intensive care and pediatric cardiac operating room as well as a pediatric cardiac ward, there were four major areas to be staffed and equipped. Fortunately, with Project HOPE's background in developing the Krakow Children's Hospital in Poland, they had a good understanding of the equipment needs and U.S. companies that might be willing to donate such equipment. The next two years were spent in accomplishing that task.

So many major items and infrastructure are taken for granted when we undertake our daily work in an established hospital. For example, in 1984 there was no "flash" autoclave in the operating rooms at Xinhua. If an instrument was dropped on the table, it was boiled in a small saucepan on a gas ring in a room that also functioned as a kitchen, adjacent to the operating room. There was no gas sterilizer for items that could not be autoclaved. The electric supply to the operating room was quite inadequate to support the huge power needs of the heater cooler units used for cooling and rewarming patients during heart surgery. So, it was not just a matter of getting the equipment to Shanghai from the U.S., but in addition equipment had to be set up and the infrastructure to support it had to be developed. Therefore, one of the first teams to go to Shanghai was a full-time bioengineering group led by a remarkable Lebanese bioengineer, Hashim Al Faydel. Hashim went to work setting up the air conditioning, power, water and other infrastructure needs of the operating room and the intensive care unit. Meanwhile, back in the United States, Jim Smith, the principal "gift in kind" coordinator for Project HOPE, worked with a large number of U.S. companies that in total generously donated more than $500,000 of equipment. By late 1985, the majority of the equipment had been obtained and the infrastructure was being put into place at Xinhua Hospital.

During 1984 and 1985, as I began to establish myself as a staff surgeon at Children's Hospital Boston, including facing the daunting challenge of managing the many babies with hypoplastic left

heart syndrome who were being referred to Boston in those years, I also worked on putting together a team of individuals who could join me on the first team visit to Shanghai. By March 1986, we had established a group of 15 dedicated volunteers, including four intensive care cardiac nurses who would be able to man the intensive care unit around the clock, a cardiac operating room nurse, a respiratory therapist, a cath lab technician, a cath lab cardiologist, an echocardiographer, a cardiac radiologist, a cardiac anesthesiologist, and myself. In March 1986, we set off on Northwest Airlines bound for Shanghai, little knowing what incredible challenges lay ahead.

It was pouring rain and quite cold on the day we first headed out to Xinhua Hospital, as it was for almost every day during the month that we were in Shanghai. The entrance to the cardiac ward was through the emergency room, and every morning we were shocked to see the large number of seriously ill individuals who would be lying on stretchers, apparently receiving little attention. They were often still there at night, when we left more than 12 hours later. The cardiac ward was even more of a shock for us, though we soon appreciated the efforts that Hashim and the bioengineers had made over the previous year. We also were pleased to find that the hundreds of shipping cartons containing all of the consumables and instruments that we would require had arrived safely and had survived the customs department. We spent the remainder of the first week unpacking equipment and beginning the process of instructing our peers in the use of the instruments and equipment.

In addition to setting up equipment through the first week, we also began the process of selecting patients for surgery. It was clear that we faced some major communication and logistical issues. For example, when patients were presented at the combined cardiology surgery conference, we found that there were many different spellings of the patients' names, which were being translated phonetically into English. While this would normally not be a problem in that there would be a uniform medical record number for patients, we soon discovered that each patient had multiple medical record numbers according to a particular admission and whether the record number applied to their cardiac catheterization, their echocardiogram, their X-ray or outpatient visit. Since many of the early studies were of very limited quality, it was extremely difficult to be sure of the exact nature of the congenital heart problem that an individual had. Eventually, however, we were able to select our first patient with a large secundum ASD and began operating.

It was a huge joy for all of us to see our first patient doing remarkably well. It was also apparently a shock and surprise for our Chinese hosts, who were accustomed to patients with ASDs being in the intensive care unit for one week and in hospital for one month. Our patient was extubated shortly after returning to the intensive care unit. On the first postoperative morning, I asked the nurses to help the patient stand out of bed. This request was greeted by a gasp by all of the Chinese physicians and nurses who insisted that the patient should stay in bed for one week. When the patient was ready to go home a few days later, we had a very happy celebration.

Over the remailing three weeks of the first team visit to Xinhua, we undertook a wide range of cases including tetralogy of Fallot and double outlet right ventricle. We began to introduce the concept of early primary repair avoiding shunts and undertaking corrective surgery in early infancy. This was clearly a major challenge. While an easier approach might have been to revert to the older approach of an initial palliative procedure and repair in later childhood, we persisted with the concept of early primary repair. That early persistence has paid dividends. SCMC is today

recognized as the leading center in China for the conduct of neonatal and infant repairs for congenital heart disease.

Planning of the Shanghai Children's Medical Center

Following the great success of the first team visit in March 1986, I organized for two educational and clinical working teams each year, sponsored by Project HOPE, to return to Xinhua Hospital, usually for a period of three to four weeks. I personally returned on an annual basis. Like all the other team members, we were amazed to see the explosion of development that was occurring in Shanghai. On our first visit in 1986 there were no major high-rise buildings in Shanghai other than the century-old buildings on the Bund and the new Sheraton Hotel which was under construction near the Shanghai sports stadium. When we first visited the new Sheraton on our next trip after its opening, we were amazed to see the huge crowds of Chinese onlookers who stood outside to watch the glass elevators move up and down the exterior wall of the hotel. During our early visits, it was exceedingly rare to see any Chinese individuals wearing anything other than blue or gray Mao suits with men and woman having similar haircuts and no adornments. All of this changed very rapidly over the next several years. It was quite a remarkable experience to arrive on an annual basis during this period and to see new high-rise buildings popping up like mushrooms around the city. As new buildings emerged, the light level at night and the number of people and cars on the street began to increase exponentially.

In June 1989, we were all shocked and disappointed to see the events in Tiananmen Square. There were some who even suggested that we should discontinue the visit that was planned for the following fall, but I was adamantly in favor of returning. It was quite clear to me that the physicians, families and children in particular were the ones who needed us, and this had to be our priority. Government politics were something we should leave to the politicians. I simply could not understand the argument that our visiting China was an endorsement of Chinese government policies. When we did return in the fall of 1989, the streets were once again deserted, it felt as if the lights had been dimmed to the gloom of 1986, and there was a hush across the city that was eerie. The 747 that flew us into Shanghai contained only 10 Americans, a handful of Japanese and a few Chinese. But over ensuing visits once again development progressed, slowly at first but then rapidly again and we watched as wealth and prosperity exploded across the city, transforming Shanghai from a sleepy backwater to regain the splendor and excitement that had characterized it in the 1930s when my grandfather had visited.

> *"Project HOPE's collaboration with the Shanghai Government to jointly create SCMC is truly a project to benefit children and families. It is not only to provide a successful model of international collaboration."*
>
> *(Madam Xie Lijuan, former Vice Mayor of Shanghai, Founder and Honorary President of the Rare Diseases Prevention and Treatment Foundation)*

Not only was progress occurring in the city of Shanghai as a whole during these years, but in addition the cardiac surgery program was rapidly expanding. By 1989, 500 cardiac procedures

were performed in one year. This was clearly placing a major stress on the infrastructure at Xinhua Hospital, which had simply not been designed to support a high volume complex tertiary surgical specialty like pediatric cardiovascular surgery. It was clear that if the program was going to expand further to serve the needs of not only the children of Shanghai but in addition to serve as a training magnet center for the remainder of China, it would be necessary to develop a new hospital. Dr. William Walsh began discussion with the Shanghai municipal government, supported by John and Bill Walsh.

One of the most difficult questions confronting us was where this new hospital should be situated and how the land could be obtained. Although Project HOPE and I had initially suggested a downtown location close to the campus of SSMU and the old French Concession area would be most beneficial for an academic pediatric hospital, the government insisted that they wanted the hospital to be situated in the Pudong area. In 1991 this was hard for us to accept. As we sat in the dining room at the Peace Hotel on the Bund, we looked across the river each morning at breakfast to the market gardens of the Pudong area. A ferry boast ran from close to the Peace Hotel back and forth across the river, bringing cyclists and pedestrians from the tenement developments in the Pudong area. Most of Pudong was still being used for growing vegetables for market across the river. It seemed that this poor and inaccessible area would be quite inappropriate for a high-level hospital. How wrong we were.

The Shanghai municipal government and the central government had earmarked the Pudong area as a special development area, and subsequently poured billions of yuan into the development of infrastructure. A new tunnel and two new bridges were built in a remarkably short space of time to connect the old city across to Pudong. The municipal government generously donated 13 acres of land close to the freeway approaches of the southern bridge. In October 1992, Dr. Walsh and the board of Project HOPE joined our team in Shanghai for a groundbreaking ceremony with the Vice Mayor of Shanghai, who had been a strong supporter of the hospital from the earliest discussions. As we stood in the cabbage farm on a beautiful fall day with the fireworks going off, the Chinese children singing, and the band playing, it was still difficult to envision this would soon be a high-tech children's hospital, surrounded by the massive high-rise developments of the Pudong area.

Development and Building of the Shanghai Children's Medical Center

Following the groundbreaking ceremony, we faced many challenges in bringing SCMC to fruition. There were some in the Shanghai municipal government who preferred to focus on the concept of a large pediatric hospital rather than a specialist hospital that would focus on a highly technical area such as pediatric cardiovascular surgery and pediatric hematology/oncology which was the other planned area of focus of the hospital. There was also the not inconsiderable problem of raising $37 million, which was the commitment of Project HOPE to the new hospital. By this time, Dr. William B. Walsh's health had failed and his son, William B. Walsh, Jr., had taken over as president of the organization. Through the tireless efforts of William Walsh, Jr., the $37 million was gradually raised. Bill and I made many visits to U.S. corporations to seek their assistance, and through their generous contributions the hospital gradually came to fruition.

In addition to the challenge of raising the financial backing for the hospital, there were numerous architectural and engineering challenges to be faced. Shanghai is built on the Yangtze River Delta and has an extremely low level relative to sea level, with a frequent risk of flooding. The ground water level is remarkably high, only a few feet below the surface, so that deep pilings had to be placed and there was no change of building the usual basement for engineering support. By 1996, however, the plans had been finalized, and on March 13, 1996, exactly 10 years since we had first arrived in Shanghai, we were able to attend the ceremonial driving of the first pile into the muddy grounds of the former cabbage farm.

Over the next two years, the hospital took shape, surrounded by a shroud of bamboo scaffolding. By June 1998, the hospital had been completed. We were honored that First Lady Hillary Clinton was able to officially open the hospital, together with the Vice Mayor of Shanghai, who had played a hugely important role in supporting the development of the hospital. During late 1998 and 1999, cardiac surgery rapidly transitioned from Xinhua Hospital to SCMC. In 1999, 717 procedures were undertaken. By 2003, that number had grown to 1,579 procedures.

The rapid expansion of pediatric cardiac surgery at SCMC was accompanied by an equally dramatic increase in the diagnostic workload in the echocardiography laboratory as well as interventional catheterization procedures in the cardiac catheterization lab. Outpatient and inpatient activity increased in parallel. During this time, Dr. Jin-Fei Liu, president of the hospital as well as a highly successful pediatric cardiac surgeon, worked in close collaboration with Dr. Xiao-Ming Shen, president of SSMU and former president of SCMC. Together with Dr. Shu-Bao Chen and Dr. Wen-Xiang Ding, they and others provided incredibly important support in building the cardiac program.

Dr. Richard Jonas discusses a young patient's cardiovascular treatment options with Chinese counterparts

One of the most rewarding areas of the entire experience from my perspective was to watch the development of the pediatric cardiac nursing program in the operating room, intensive care unit and ward. Over the years, these educational activities were coordinated by Ms. Patricia Hickey, the Vice President for Intensive Care Nursing and Cardiovascular Services at Children's Hospital Boston. Working with many outstanding nurse educators, Ms. Hickey put together a superb team of nurses who managed patients with the same independence, meticulous attention to detail, and yet caring and compassionate family-centered care as her nursing team in Boston.

Final Perspectives

The Shanghai Children's Medical Center demonstrates the success of Project HOPE's philosophy of "Train the Trainer." SCMC is now a magnet teaching center for much of China, with many surgical teams from regional centers visiting the hospital, as well as teams from SCMC visiting other centers where they assist and train others. It has been an honor and a privilege to have had the opportunity to participate in this highly successful collaboration between the United States and China.

4. Health Professional Training for SCMC
Author: Frieda Law

I was engaged by Project HOPE from February 1966 to end of December 2001 and was based at Shanghai. As a Chinese Australian educated in Melbourne, trained as a pediatrician and with clinical experience in both developed and developing countries, I was recruited to be the "medical educator" for the Shanghai Children's Medical Center (SCMC) project. This was Project HOPE's first attempt in building a hospital with a local partner, the then Shanghai Second Medical University (SSMU), now the Shanghai Jiatong University Medical School.

SCMC, located in the then rather rural and isolated Pudong area of Shanghai, was conceived few years before my arrival at Shanghai, with the ground-breaking ceremony in 1992. The architect was NBBJ, an American firm familiar with building hospitals. However, there had been relatively little progress in the construction after ground-breaking which, I am sure, was due to multiple reasons. It was not until March 14, 1996, when the first foundation lateral support was placed underground and the construction of SCMC continued from then on. My role as the medical educator was to prepare pediatricians working at SSMU-affiliated Xinhua Hospital to be trained in USA and other developed countries, so that they are better-prepared to work in the future state-of-the-art SCMC facility. For a hospital, other than doctors, nurses, allied healthcare workers and administrators are equally important. While my main focus was on the medical side, I gradually and eventually took on the role of a program director facilitating the training and preparedness of the healthcare personnel for SCMC. As some of these areas will be covered by my former colleagues, and to stay more focused, I will just describe the "medical" side of the project in the rest of this chapter.

Prior to the Opening of SCMC

Project HOPE's office was located in the library building of SSMU campus. Lyle Smith was appointed as the Program Director and started a few months before me. He was assisted administratively by a SSMU bilingual staff Gu Shuping whom we all affectionately called Xiao Gu. Arlen To, a Chinese Canadian engineer from Hong Kong, was responsible to help oversee the construction of and equipment procurement for SCMC. He returned to Canada after some time and a Hong Kong Chinese CM Leung took over. Another lady with roots in Hong Kong was Maggie Kong, a very experienced Chinese-Canadian nurse educator. Tom and Cindy McLean had been in Shanghai for a couple of years and returned to the US not long after we started.

Project HOPE also had two medical programs outside Shanghai started some years before but were still ongoing. One was in Emergency Medicine in the then Zhejiang Medical University-affiliated Second Hospital with Massachusetts General Hospital as the partner/training site. The other was in Burns/Plastics in Liuyang People's Hospital in Hunan province, with SSMU-affiliated Ruijin Hospital as the partner/training site but overseen by medical and nursing consultants from Massachusetts General Hospital. Hence, in the earlier days I also facilitated both programs in Zhejiang and Hunan provinces.

It was also through this connection that I got to meet Dr. Susan Briggs (surgeon from MGH), Sheila Burke and Lin-Ti Chang, both nurses from MGH. In fact, we subsequently managed to entice Lin-

Ti to work in Shanghai on the SCMC project for two years. Being a Chinese-American originally from Taiwan, she spoke excellent Mandarin which was a great help. Maggie worked in Shanghai for about four years before returning to Toronto. Before her departure, we were fortunate to have recruited Lily Hsu (Chinese-American originally from Taiwan) as the nurse educator. Lily has continued to make great contributions to SCMC and nursing in general.

Now, let me turn to the work in the hospital, where I used to spend a good part of the day before returning to Project HOPE office in the mid-late afternoon to handle paperwork, etc.

"As the water shapes itself to the vessel that contains it, so a wise man adapts himself to circumstances."
(Confucius)

SSMU-affiliated Xinhua Hospital is a general hospital with about 1640 beds then but with a focus on pediatrics, occupying about one-third of the total hospital beds. There was also a "pediatric college" right behind the Xinhua Hospital where most of its pediatricians were trained. At that time, some of the pediatricians there were already chosen to work in the future SCMC. In fact, some overseas exchanges and training had begun few years before my arrival, especially in pediatric Cardiology/Cardiac surgery and Hematology/Oncology, which were chosen to be the major specialties for SCMC.

Before February 1996, I have never set foot on mainland China and hence this was not only a new job but a totally new environment, way of life and "culture" when I landed in Shanghai. Having been born and grew up in Hong Kong before immigrating to Australia at 16 years of age, I could only speak the Cantonese dialect and English but not Putonghua (Mandarin), let alone the Shanghai dialect. I could read and write Chinese but only the traditional Chinese characters and not the simplified ones used in mainland China. Therefore, I had to learn to understand and speak conversational Putonghua, but more importantly, to learn all the medical terminology in Chinese on the job pronto!

Although both a medical educator and nurse educator engaged by Project HOPE had worked with the Chinese counterparts at Xinhua Hospital (XHH) for a few years, there was no concrete training program which I was instructed to follow. Due to my limited language capability and in order to earn trust from the Chinese partners, I spent the first 6-9 months mainly observing at the different pediatric wards and departments at XHH. Although I was trained in a developed country within a well-equipped western hospital environment, my one year's volunteer work as a pediatrician in

Galle of Sri Lanka in 1994/95 prepared me well for working in a less-than-ideal situation.

As time went by, I began to understand the healthcare system and delivery as well as the way medicine was/is practiced in mainland China. A public hospital only received 10% of its funding from the government, while the rest had to come mainly from clinical services. This helped to explain why patients had to pay a deposit on admission and doctors had to ask parents to pay bills all the time. I was extremely surprised and saddened to see that parents would stop/withdraw treatment due to inability to pay, and/or the hospital would withhold certain treatment if the parents could not afford, even if the child had a good prognosis. On the other hand, there were also incidences that major treatments were provided, the child recovered and left the hospital with huge unpaid bills. If the hospital staff insisted on the payment, the parents would threaten to leave the child behind in the hospital. Fortunately, this situation has changed, and today no patient can be rejected due to inability to pay for medical services.

After 6-9 months, our relationship with the Chinese partners improved greatly as they began to trust us. Dr. Shubo Chen, a senior pediatric cardiologist and then Party Secretary of XHH and founding director of SCMC, was the chief person with whom we worked closely. My main focus was in the training of physicians, nurses and other staff, though I assisted in the communications between the Chinese and US partners in issues related to SCMC construction and facility planning and development. There were two-way exchanges in areas such as cardiac surgery for congenital heart diseases, training for OR and ICU nurses, as well as anesthesiologists and perfusionist with Dr. Richard Jonas' team at Boston Children's Hospital and cardiology (including echocardiography) with Dr. Henry Issenberg at Albert Einstein medical school. For Hematology/Oncology, Dr. Ching-Hon Pui from St Jude's Children's Research Hospital at Memphis had already established contacts with counterparts at XHH.

I facilitated the US consultants' many visits and also helped to prepare selected pediatricians to undertake training and fellowship in the respective US institutions. To this end, I started to do some medical English teaching for the local pediatricians, in the form of case discussion on the ward. This turned out to be the best learning opportunity for me; at the end, I picked up many more Chinese medical terms from my colleagues than they did English. For those pediatricians slated for overseas fellowship, one-on-one tuition was provided to allow for specialty focus and to expedite language acquisition.

Working in SCMC

June 1st 1998 saw the birth of a new state-of-the-art children's hospital in Pudong area of Shanghai.

Getting this brand new first-class facility ready for operation was easier said than done. There were lots of last-minute preparatory work, for instance I still vividly remember workers putting on the last coat of paint on the huge pillars in the atrium, others completing the last bit of internal furnishing, whilst the engineers tried to finish all the machine installation etc. In addition, equally if not more important were efforts spent in ensuring that the software (personnel) would meet the high standard. To this end, we had to send heads of supporting services, housekeeping, hospital catering, finance, personnel and administration to hospitals in Hong Kong for training. Most of

them went to the Pamela Youde Eastern Nethersole Hospital since it was the first hospital in Hong Kong to obtain ISO certificate and they also provided well-structured training programs for mainland hospital personnel. First-hand experience, albeit just a week, was much more effective than a thousand words. Having all the departments, rather than just doctors and nurses, cognizant of the international management standard of a hospital was vital in changing the whole "culture" of the Hospital. When I returned to visit SCMC a few years after leaving, a taxi driver picked me up from the Hospital and not knowing my past connection with the institution, commented that staff at SCMC were very "different" (in a good sense!) from other hospitals. I smiled quietly and somewhat proudly to myself.

As expected, we had to resolve many teething problems that emerged during the initial period of SCMC's operation. Notwithstanding, staff training continued and in fact at a quicker pace for new recruits and to meet the rapidly expanding patient load. Among the new partnerships identified was the one with the Schneider Children's Medical Center of Israel (SCMCI), funded by MASHAV through the Israel Consulate General in Shanghai. Three teams of four consultants (of different sub-specialties) each from SCMCI would visit SCMC during the year. To conclude the year, SCMC reciprocated with sending a team of four (doctors/nurse) for three months' training at SCMCI. This partnership covered a number of sub-specialties – general surgery, orthopedics, neurosurgery, emergency medicine, critical care and anesthesiology. The opportunities for hands-on practice in Israel (not possible in US) enabled SCMC colleagues to master a new skill or way of practice. The biggest benefit was the training of a few physiotherapists, a profession which is still rather under-developed in mainland China 20 years on. Pediatricians sub-specializing in mental and psychological development of children and adolescents, a rather new area in mainland China at the time, obtained training through a partnership with Wisconsin Children's Hospital. Other sub-specialties also partnered with other US pediatric centers/hospitals.

The "no money, no treatment" way of medical practice continued to bother me a great deal. With the opening of SCMC came the opportunity for me to set up a charitable fund to at least partially defray the medical cost for underprivileged children and families. Being one of the very few western –trained pediatricians in town at the time, I took care of a number of children from Europe, US, Australia etc. A majority of these families were only in Shanghai for short-term employment and I asked them to donate toys, books and other mementos when they left, and became a "professional beggar!" These plus other donated items made up the monthly "Dr Law's Charity Bazaar", with money raised going into the charitable fund of SCMC. I was told this charity bazaar went on for some years even after my departure.

Lessons learned

As a pure clinician by training, I would never have thought of taking on the role of a "medical educator," let alone a "program director" (which eventually I was made to become) helping to build a pediatric hospital. I am most grateful to Project HOPE for providing me with this rewarding opportunity. It has been a most valuable learning experience. For any Sino-western joint venture, especially a healthcare facility, to succeed and be sustainable, early trust-building is most important. This may take time, but is something definitely worth investing in. Cultural sensitivity and mutual respect are equally essential. During my 5 years and 10 months in Shanghai, I facilitated 155 hospital professionals for overseas training, lasting from one week to two years. Every one of them returned to contribute to improving the overall standard of pediatric care. Personnel training and continual staff development are critical to the success of any new healthcare facility.

Project HOPE Emeritus Chairman, Dr. Charles Sanders, with John Walsh, and Dr. Ding Wenxiang, a renewed cardiovascular surgeon at SCMC on SCMC 10 years anniversary in 2008

D. Clinical Biomedical Engineering Program: Laying the Groundwork for the Expanding Role of Technology in China

Author: Joseph Schmidt

Introduction

Developing countries that embark on ambitious hospital modernization programs often face daunting challenges that stem from importation and application of advanced medical technology. Inappropriate selection, improper use, poor maintenance, and lack of affordable disposable and replacement parts can lead to shockingly high percentages of life-saving equipment left unused or discarded. With emphasis placed on training clinical staff involved directly with patient care, the need for training ancillary medical equipment specialists can be overlooked.

When Project HOPE and its Chinese counterparts initiated its collaborative health programs in the mid 1980's, they had the foresight to integrate clinical biomedical engineering (BME) education into their plans from the start. The Chinese Ministry of Health's recognition of the need to address the growing demand for imported and domestic hospital equipment added an important impetus to the program. HOPE's core programs at that time were the joint development of a pediatric cardiovascular center at Xin Hua Hospital and a Neonatal/Pediatric intensive care unit at Zhejiang Medical University-Affiliated Children's Hospital in Hangzhou. Both of these programs depended on proper functioning and maintenance of complex medical instrumentation donated by U.S. corporations or purchased by the Chinese Ministry of Health with scarce foreign currency reserves. The availability of well-trained technical staff was important to avoid interruption of patient care during visits of HOPE clinical experts. Most important to the overall success of the BME program, however, was the development of a working educational model to address the critical shortage of clinical biomedical engineering technicians (BMETs) throughout China.

Program Goals

Professor Herman Weed, Director of HOPE's BME program, and his Chinese counterparts worked out a comprehensive plan that would lead to the graduation of the first class of clinical biomedical engineering technicians and engineers within 3-4 years after the initiation of the joint program. This ambitious plan not only called for the recruitment of faculty to develop new curricula and training, but also the construction of supporting physical infrastructure -- classrooms, equipment, laboratories, and hospital workshops. Zhejiang Medical University (ZMU), Shanghai Second Medical University (SSMU), and the Shanghai Institute of Science and Technology (SIST) were chosen as the primary collaborating institutions.

As the coordinator of HOPE's small staff of on-site BME educators, I had the responsibility to put the plan into action. The existing resources for equipment maintenance at the site were sparse – workshops at the largest affiliated hospital were staffed by a few repair technicians whose main jobs focused on keeping the Chinese-made electro-mechanical devices (e.g., suction pumps and ventilators) in the hospital operational. With a limited number of spare parts available on site, the technicians relied on the Chinese manufacturers to manage repairs. Few had the training to service the new generation of (mostly imported) patient monitors, laboratory analyzers, ventilators, and

other complex medical instrumentation that would become indispensable tools of clinical medicine in China over the coming decades. Besides equipment repair, the other important components of a comprehensive clinical BME department—pre-purchase evaluation, inventory control, safety inspections, and preventative maintenance—were unfamiliar concepts in Chinese hospitals at the start of the program.

Challenges

Surprising to me, the logistical difficulty of establishing a new educational program and its supporting infrastructure in China was not the primary challenge with which the HOPE BME personnel had to contend. Early in the program, a more abstract challenge became apparent: the perceived low status of clinical biomedical engineering technology as a discipline. The academic tradition of Chinese universities had created a bias against newer, less-established disciplines, especially those with a practical orientation, in favor of the natural sciences, mathematics and the traditional engineering disciplines. At that time, biomedical engineering education had already become commonplace in universities in the U.S. and in many other Western countries, but only a few fledging programs existed in China. These programs, which were affiliated primarily with medical schools (like ZMU and SSMU), were thought to lack the theoretical rigor of the established engineering disciplines. In fact, biomedical engineering in Chinese universities was taught in much the same way as the traditional engineering disciplines, with nearly exclusive emphasis on theory and little training in the practical aspects of medical instrument design, application, or maintenance. Most BME students were prepared for careers in research or teaching rather than in hospitals or the medical device industry.

Faculty recruitment was a challenge during the initial phase of the project, but the appeal of the program grew in the later phases. The continued presence of the on-site HOPE educators, opportunities for faculty training in the U.S., and frequent visits by short-term HOPE consultants helped boost the reputation of the program. I admire the pioneering spirit of our Chinese counterparts who shared our vision of the contributions that their future students would have on healthcare delivery and the development of the medical device industry.

Accomplishments

The first year of the program was devoted mainly to infrastructure building. New curricula for one-year associate-degree technician and three-year baccalaureate engineering programs were planned and implemented; internship programs were established; libraries shelves were filled with donated textbooks and reference guides; new university laboratories were built and equipped with donated equipment; and hospital workshops were expanded and updated.

HOPE personnel and their Chinese collaborators helped earn respect for the discipline of clinical BME by developing a high-quality and comprehensive educational program, while working with faculty to demonstrate the practical value of BME in the hospital setting. One day, a HOPE educator would be explaining the theory of operation and design of a complex medical instrument; the next day, the same educator would be disassembling and troubleshooting a faulty piece of equipment with his own hands in front of technicians in the hospital. This juxtaposition of the theoretical and the practical was one of the unique aspects of the program.

The new university BME laboratories were built at Zhejiang Medical University (ZMU). Equipped with medical equipment donated by Project HOPE, this laboratory gave BMET students a chance to gain hands-on experience with the operation, testing, and repair of advanced medical equipment. Practical training was integrated into the education of the baccalaureate-level students as well as the associate-level students. To prepare future biomedical engineers for a variety of employment opportunities in medical technology, the biomedical engineering students also learned the principles of instrumentation design.

When specialized test equipment was not available through donation or was too expensive to purchase, the most ingenious students would build their own from locally manufactured parts (see below). Beyond technical skills, the BME students also learned the basic business and management skills needed to develop hospital purchasing and management programs.

The first major milestone of the program was reached with the graduation of the classes of BME and BMET students from the Hangzhou and Shanghai programs in 1988. After completing the one-year BMET and three-year BME programs, 25 – 30 graduating students from each site were assigned to positions in the university, university-affiliated hospitals, and industry. Transition of the program to independent operation by our Chinese counterparts began the following year with the graduation of the next group of students.

Regrettably, the BME program was abruptly suspended in June 1989, following the political crisis surrounding the pro-democracy demonstrations in Tiananmen Square.

Personal Reflections

In 1993, five years after returning to the U.S., I had the opportunity to return to Hangzhou and Shanghai to review the status of the university- and hospital-based BME programs. This visit allowed me to reflect on the impact of the programs and to witness the extraordinary influence of the market economy on medical technology in China. I found the Hangzhou program at Zhejiang Medical University (now part of the top-ranked Zhejiang University) to be thriving, still graduating a new class of biomedical engineers and technicians each year. The ZMU-affiliated hospital workshops had expanded and now employed several of their own BME program graduates. Consistent with the growing entrepreneurial spirit in the early 90's, ZMU had established a 'BME Business Group' staffed by biomedical engineers and technicians that performed procurement, maintenance, and repair services for surrounding hospitals.

In comparison to Hangzhou, progress in the hospital-based BME programs in Shanghai was not as evident at the time of my visit. However, the programs were beginning to be reinvigorated to meet the demand of an expanding medical device industry, particularly for engineers with both theoretical and practical knowledge of medical technology. At the time of my visit, the need was apparent for skilled biomedical engineers and technicians to manage the large quantities of medical equipment planned for installation in hospitals throughout China. The Shanghai Children's Medical Center, which opened in 1998 and is now one of the foremost children's hospitals in China, has been one of the prominent beneficiaries of the groundwork laid by the BME programs in Shanghai.

It is gratifying to realize that the faculty and students of HOPE's pioneering BME initiatives have gone on to support world-class medical centers and a domestic medical device industry that serve millions of Chinese today.

E. Chronic Disease and Health Promotion Programs

1. National Diabetes Education Program

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It was a privilege for me to serve on the Project HOPE Board of Directors for 17 years. During my tenure, we paid close attention to China projects, especially the Shanghai Children's Medical Center effort, the most complex program undertaken in HOPE's history.

I also proudly remember the Project HOPE's China diabetes education programs. After a 1995 Board meeting, I informally asked the HOPE management team about the possibilities of an initiative to address the growing burden of diabetes. HOPE responded to my inquiry with alacrity. Less than a year later, a nationwide partnership program operated by the Ministry of Health, Project HOPE, and medical university partners was in place, training health providers in best practices. This effort and others that evolved from it continue today. Many thousands of health providers throughout China have benefitted, as have their patients.

This program and others described in this Monograph are testimony to the close working relationships that Project HOPE has cultivated in China. Bilateral, multilateral, and private sector companies would be well advised to consider working through HOPE in their philanthropic efforts. My former employer Becton Dickinson has done so for more than two decades, and it has been a beneficial partnership for all parties.

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Introduction

The long partnership between the Ministry of Health and Project HOPE to address diabetes in China began in 1996. Under the leadership of then-Minister of Health Dr. Chen Ming Zhang, a national program to train health professionals in the delivery of diabetes-related health services, as well as to educate families of diabetic patients, was developed. Project HOPE Board member Jack Galiardo and the HOPE team acquired startup funding and mobilized health professional and scientific networks from leading centers worldwide to support the effort. Consistent with HOPE's philosophy, the training programs were multi-disciplinary, involving physician, nursing, dietetic, and social service personnel. At the time, Minister Chen advised that this was among the first national initiatives to address chronic disease in China. Indeed, it was an honor for Project HOPE to work with Minister Chen, who for so many years had overseen and contributed significantly to the impact of joint programs throughout China.

This initial program lasted until 2006. Based on lessons-learned, the Ministry and HOPE developed several new efforts reaching patients, family members and health professionals throughout China. Programs within the HOPE China diabetes portfolio have included:

- National Diabetes Education Program, 1996-2006
- Bringing Diabetes Care and Education to the Community, 2007-2009

- Expanding and Improving Diabetes Care and Education in China, 2008-2013
- Diabetes Education for General Practitioners in Community Health Service Centers, 2015-2017
- Community-Based Diabetes Total Care Innovation, 2015-present

These programs have all been funded by leading health care corporations headquartered in the U.S. and Europe. The National Diabetes Education Program, launched in 1996, was notable as the first major Project HOPE initiative to be jointly sponsored, with equal funding, by three multinational health care companies – Becton Dickinson (BD), Eli Lilly & Company, and Boehringer Mannheim (later acquired by Roche, which assumed the company's funding obligation). Subsequent diabetes programs have been developed and undertaken with the continued support and sponsorship of these three companies, along with the recent addition of AstraZeneca.

It is important to recognize these companies that have provided the funds to underwrite this effort, as well as providing critical expertise. It is also important to recognize individual HOPE contributors, the Ministry of Health, and provincial authorities where the programs were conducted. It is rare in the field of international health collaboration that efforts endure 20 years and is testimony to the dedication of Chinese and HOPE personnel.

Need/Rationale

When Project HOPE first began exploring opportunities for diabetes programming in the mid-1990s, the disease was becoming recognized as a looming global epidemic. Currently, diabetes affects nearly 400 million people worldwide (with this number expected to grow to nearly 600 million by 2035, according to the International Diabetes Federation). Developing countries will be hit the hardest by the escalating diabetes epidemic, due to increased urbanization, westernization, and economic development, as well as overall deficiencies in the area of prevention.

China has the world's largest number of people living with diabetes. A recent study published by the Journal of the American Medical Association found that 113.9 million adults in China have diabetes, and 493.4 million are pre-diabetic. As the country deals with a rapidly aging population and with the effects of urbanization, westernization and economic development, diabetes threatens to become an even more serious national health crisis.

"The man who moves a mountain begins by carrying away small stones."
(Chinese Proverb)

As China has modernized, the threat of chronic diseases other than diabetes has also escalated – and while Project HOPE has continued to implement programs addressing the diabetes crisis, it has also added other projects to the chronic disease portfolio. These projects, which have benefited from lessons-learned under the China diabetes programs, are detailed elsewhere in this monograph.

Program Goals and Objectives

- ***National Diabetes Education Program (1996-2006)***

The China National Diabetes Education Program was one of the first national efforts to address the rising prevalence of chronic disease, and the first to introduce a team approach to diabetes education and care in China. The goal of the program was to reduce the rates of mortality and morbidity related to diabetes by strengthening the capacity of doctors and nurses at national and provincial tertiary hospitals, in order to increase their knowledge and skills in diabetes diagnosis, treatment, and patient education. This goal was to be achieved through the establishment of several strategic "train the trainer" bases around the country, and the training of health professionals and community members in the prevention and treatment of diabetes.

- ***Bringing Diabetes Care and Education to the Community (2007-2009)***

In 2006, the Chinese Ministry of Health began to emphasize delivering care through the community health service network. The Bringing Diabetes Care and Education to the Community program developed and implemented by HOPE aligned with this priority. The goal of this program – which utilized the technical capacity and network established over the previous decade – was to reduce the growing rates of diabetes by expanding and improve diabetes education and care at the city and community levels, working closely with the government's national health care reform initiative. As with the original initiative, this was to be achieved through the training of health professionals and community members in diabetes prevention and treatment.

- ***Expanding and Improving Diabetes Education and Care (2008-2013)***

The focus on expanding diabetes education and care at the community level continued under a separate, five-year initiative undertaken by HOPE in 2008. The Expanding and Improving Diabetes Education and Care program targeted city, county and community levels in seven provinces. The overarching goal remained the reduction of diabetes rates through the training of health professionals and community members, as well as the establishment of provincial training centers and sub-training centers in strategic locations around the country, adapting and building on the training center model developed by HOPE in the original diabetes initiative.

- ***Diabetes Education for General Practitioners in Community Health Service Centers (2015-2017)***

This three-year strategic partnership between BD and Project HOPE was launched in July 2014 with the goal of improving the health outcomes of diabetes patients through strengthening service capacity and the quality of community health service centers. The program was piloted in two targeted districts of Hangzhou city (Xihu and Gongshu districts).

- ***Community-Based Diabetes Total Care Innovation (2015-present)***

This recent program continues HOPE's focus on diabetes, with the goal of building primary health care capacity in diabetes education, diagnosis, treatment and care. The three-year initiative, which was piloted in Tianjin City before being scaled up, was developed in alignment with the Chinese

government's priorities and health care reform agenda. The program is aimed at improving health services for diabetes patients through health provider training, as well as strengthening patient self-management capacity.

Strategies

Since 1996, Project HOPE's diabetes programs in China have developed under several overarching thematic strategies, including:

- collaboration with government health policies and involvement with policy makers
- building sense of ownership among local partners to ensure policy support and program sustainability
- program approaches and designs evolve to better respond to changes in health needs
- focus on capacity building
- sharing of evidence-base program outcomes with policy makers and other stakeholders

Capacity-building, public awareness, and strengthening of the existing national network are all key strategies to ensuring program success and sustainability. Project HOPE involves health officials, experts, and media in program design and implementation. The programs have all established national Senior Technical Advisory Groups (SENTAGs), including health officials from the National Health and Family Planning Commission (NHFPC, formerly the Ministry of Health) and national subject experts to provide both policy and technical support. The SENTAGs review/adapt program curriculum, training materials, and monitoring and evaluation tools to ensure quality of content.

In addition, implementation of the diabetes programs incorporates several specific, integrated operating strategies, including:

- upgrading the knowledge and skills of health care providers in the timely diagnosis and appropriate treatment of diabetes
- improving patient education and increase empowerment regarding management of the disease
- increasing public awareness about the impact of diabetes and how it can be prevented and managed
- building and extending diabetes treatment and care capacity at the central, regional and local levels
- coordinating with key public and private entities in China to strengthen public policy regarding diabetes and to ensure long-term sustainability

The key to upgrading the knowledge and skills of health care providers was in adapting and applying Project HOPE's traditional train-the-trainer approach. This was accomplished through the establishment of multiple provincial training centers and sub-training centers, where health care providers were trained along with a cadre of master trainers who would bear responsibility for continuing the development of knowledge and skills and eventually expanding it from the national and provincial levels down to the city and community levels. Training workshops were conducted at sub-training centers/provincial centers, with technical support from provincial program centers.

Significantly, training conducted under recent and current diabetes programs has been done primarily by experts who were trained under previous HOPE diabetes programs, dating back to 1996 – reinforcing the concepts of train-the-trainer, knowledge transfer, and sustainability underlying all of HOPE's efforts.

In addition to the provider training, patient empowerment and increased knowledge for both patients and family members has always been an important strategic component of HOPE's diabetes initiatives in China. This was accomplished through a review and adaptation of existing patient and family education materials and the development of new materials based on a needs assessment, and the dissemination of updated and accurate materials to program sites.

Project HOPE used a complementary strategy to increase awareness about diabetes within the general public, organizing targeted media campaigns and public health education and promotion activities at the national and local levels. A number of program activities were planned and conducted in coordination with the annual World Diabetes Day (WDD), including free screenings and consultations, delivery of health messages, and distribution of educational materials.

The effort to build diabetes treatment and care capacity involved several strategic approaches, including the establishment of a nationwide network linking training centers with hospitals and community health centers, strengthening of the referral mechanism between tertiary hospitals and primary health care facilities, establishment of a diabetes patient management database, and the development and refinement of a Monitoring and Evaluation toolkit to track program progress and ensure program quality.

However well-planned and well-intentioned, Project HOPE has long recognized that program activities can be effectively sustained only if they reflect and are integral to national policy and are supported by key in-country counterparts. Accordingly, in this initiative, Project HOPE has worked closely with the National Health and Family Planning Commission (NHFPC) – formerly the Ministry of Health – as well as a nationwide network of medical associations, leading hospitals and experts, in designing and implementing all program activities, in alignment with national health reform goals and with public policy. MOH/NHFPC also supported the program through recognition in WDD publications and co-sponsorship of diabetes management seminars.

Results

Since 1996, Project HOPE has served as a catalyst to bring public and private partners together to address diabetes education and care needs in China. The partnership has enhanced communications between NHFPC and the private sector, mobilized resources, and demonstrated positive changes in patients, health care providers, health facilities, and the public. Over the years, the focus has shifted from addressing diabetes at the national and provincial levels to the city, county and community levels. Project HOPE's most recent undertaking is focused on enhancing the capacity of community health centers in diabetes education and care – an effort that will help drive patient traffic from tertiary hospitals to community health centers and will contribute to achieving the goal of national health care reform in China.

Among notable outcomes from Project HOPE's diabetes initiatives in China since 1996:

- Establishment, under the initial China Diabetes Education Program, of a nationwide diabetes network linking 10 provincial training centers and 812 hospitals and community health centers
- Establishment, under a program extension, of seven provincial training centers and 18 sub-training centers
- Establishment, under a more recent program specifically targeting general practitioners and nurses in Hangzhou City, of a provincial training center and 22 affiliated community health service centers
- Training for more than 45,000 providers at all levels of the health care system, as well as more than 1,500 trainers
- Reaching more than 250,000 patients and family members with targeted diabetes education messages
- Screening 5,000 people and distributing educational materials at World Diabetes Day and other public awareness events
- Partnering with mass media to increase public awareness about diabetes

- Development of a diabetes patient management database
- Co-sponsorship with NHFPC/MOH of the National Seminar on Community-based Diabetes Management Models in Xian (2010) and Hangzhou (2015)

Anecdotally, HOPE partner Dr. Ma Li has played a very important role in diabetes education in the Daxing district of Beijing. Dr. Ma was a trained trainer under HOPE's original *National Diabetes Education Program* (1996-2006) and is Director of the Endocrinology Department of Guanganmen Hospital South Area of the China Academy of Chinese Medical Science, one of the program's 18 sub-training centers (developed under the *Expanding and Improving Diabetes Education and Care Program*, 2008-2013).

Because of his rich experience in diabetes treatment and education and his positive, enthusiastic attitude, patients with diabetes often insist on seeing him rather than more renown practitioners elsewhere in the city. Dr. Ma usually cannot end his outpatient service until 2:00 p.m., and he insists on visiting the township hospitals once a week to help with capacity building. Additionally, his team has developed a diabetes patient club, and has supported the group for 11 years. "I'm very glad to fulfill Project HOPE's mission," said Dr. Ma. "We help them (patients) to help themselves."

2. Other Chronic Disease Programs
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Introduction

Project HOPE was an early pioneer in recognizing the need for programs addressing the rising rates of chronic diseases in China. While most of the programs conducted within this portfolio have focused on diabetes, HOPE has implemented a number of other initiatives, including:

- Total Cycle of Care/Chronic Disease Management, 2010-2013
- Hope and Care for Children with Epilepsy, 2013-present
- China Alliance for Respiratory Diseases, 2015-present
- Pediatric Asthma Prevention and Management, 2015-present

These programs have all been funded by leading health care corporations headquartered in the United States and Europe. The Chronic Disease Management Program was sponsored by Philips Healthcare. The Epilepsy Program was sponsored by UCB. And programs targeting asthma and other respiratory diseases have been sponsored by AstraZeneca.

It should be noted that this paper is not intended as a comprehensive summary of all activities conducted by HOPE within the chronic disease parameters. Beginning in 2002, for example, HOPE conducted a Healthy Heart program, sponsored by Medtronic, in which cardiologists and cardiac nurses from hospitals throughout China were trained in preventing and reducing the effects coronary heart disease. In 2012, HOPE initiated a program sponsored by Becton Dickinson (BD) to address high rates of cervical cancer in Chinese women, by increasing public awareness and knowledge, introducing appropriate and culturally fitted screening technology, and enhancing the capacity of the health care system in cervical cancer diagnosis. These and other important programs deserve mention, but they cannot be presented in detail in this paper.

1. Program

A. Need/Rationale

Project HOPE's first chronic disease programs in China, initiated more than 20 years ago, targeted the rising rates of diabetes. But as China has modernized, the threat of other chronic diseases has also escalated – and while Project HOPE has continued to implement programs addressing the diabetes crisis, it has also added other projects to its chronic disease portfolio. In 2006, the Chinese Ministry of Health's National Health Service Survey confirmed that non-communicable or chronic diseases were a major cause of disability and the leading cause of life years lost among middle and elderly aged populations. The survey found that the number of cases of cardiac and vascular diseases, together with diabetes, rose from 37 million in 1993 to 114 million in 2008, with the largest increase in heart disease and cerebral-vascular accidents. While the incidence of respiratory and digestive diseases was decreasing, they remained the most common diseases in China. The

three-year (2010-2013) Chronic Disease Management Program was HOPE's first major chronic disease initiative in China addressing the prevention, diagnosis, treatment and management of multiple diseases, including coronary artery disease, stroke, and Chronic Obstructive Pulmonary Disease (COPD).

The focus on epilepsy resulted from discussions between Project HOPE and the global biopharmaceutical company UCB. In China, there are six million patients with active epilepsy, and 400,000 newly diagnosed cases each year. The incidence of epilepsy in children is much higher than in adults. According to the China Association Against Epilepsy (CAAE), appropriate treatment could help about 75 percent of children live seizure-free lives. However, an estimated 63 percent of epilepsy patients are inadequately treated in China. The rate of proper diagnosis and treatment is significantly lower in rural areas than in cities. There are limited joint efforts by hospitals and school health providers to help students live with epilepsy. Social stigma is another major challenge faced by patients and their families. The four-year "Rainbow Bridge" Hope and Care for Children with Epilepsy program (January 2013-December 2016) was developed to address gaps and challenges in epilepsy treatment and care.

The Rainbow Bridge Program, sponsored by UCB, focused on improving the health of children living with epilepsy.

The most recent major pillar in HOPE's chronic disease portfolio in China is chronic respiratory diseases, including chronic obstructive pulmonary disease (COPD) and asthma. The third leading cause of death worldwide, COPD affects more than 100 million people in China and is soon expected to become the most prevalent disease in the country. Moreover, because two-thirds of COPD patients are initially diagnosed in late stages of the disease (and because roughly 40 percent of patients are unaware that they have COPD), prevention and earlier diagnosis and treatment provide an opportunity to save lives and safeguard public health. To address this, the program initiated the SMILE (Screen and Monitor to Improve Lung Disease Early Detection) project to promote the early lung function screening for patients with high risk factors for COPD.

HOPE's recent venture into the respiratory disease area has also provided an opportunity to wed its expertise in chronic diseases with the organization's historic focus on child health – specifically childhood asthma. Worldwide, asthma is the leading cause of hospitalization among children. In

China, the incidence of asthma has increased dramatically, with rates up by as much as 40 percent over the past five years. Prevalence in some cities is 11 percent and rising. Despite the physical burden on the patient from childhood asthma, and the financial burden which the disease places on families and communities, standardized plans for prevention, early detection, and treatment are lacking; awareness of chronic respiratory conditions in China is low; and education on the adherence to asthma guidelines is lacking across the continuum of care. For patients with asthma, promoting nebulizer therapy for adults and children, to enhance efficient and effective asthma prevention and therapy in tertiary hospitals and community health centers, is the primary aim of the project.

B. Goals and Objectives

- ***Chronic Disease Management (2010-2013)***

This goal of this program, the first of HOPE's major chronic disease initiatives in China outside of diabetes, was to provide a total cycle of care to address unmet needs in cardiovascular disease, COPD, and stroke. The program was designed to decrease mortality and morbidity of patients with these specific chronic diseases. The means through which this was to be achieved was by strengthening the capacity of health care professionals to provide quality services for these patients, to promote chronic disease prevention and healthy lifestyles among individuals at risk of chronic diseases, and to facilitate chronic disease referrals and rehabilitation between hospitals and community health centers (CHCs).

- ***Hope and Care for Children with Epilepsy (2013-present)***

The goal of the original four-year program was to improve the health and well-being of children in China living with epilepsy. The program, which adopted the name "Rainbow Bridge," was focused on improving service capacity in epilepsy diagnosis and treatment, and increasing public awareness of epilepsy. The program sought to achieve these ends by mobilizing a broad consortium of engaged stakeholders, including patients and their families, heath care providers, school teachers, policy makers, and the public – working together to help children with epilepsy manage their disease and live healthy, productive lives. In 2017, the program was extended for three additional years, through March 2020, with the continued support of UCB. Continuing to focus on the original goal of improving the quality of life for children, the objectives of the extension were to improve integration of the tertiary and primary health care systems; enhance public awareness to reduce social stigma; improve treatment compliance and home care for children with epilepsy; and ensure access to care for children who are transitioning to adulthood.

- ***China Alliance for Respiratory Diseases (2015-present)***

The aim of the CARD Program – HOPE's first significant, dedicated foray into the respiratory disease area – is to reduce morbidity and mortality related to chronic respiratory diseases by working at the local and policy levels to improve disease prevention and treatment capacity within the healthcare system. This was to be achieved primarily through health care provider training, public and patient education, and greater emphasis on health policy and economics related to chronic respiratory diseases. A subsequent, related initiative sought to strengthen local capacity for

chronic respiratory disease prevention, diagnosis and treatment by improving the ability of primary hospitals to conduct simple lung function tests.

- ***Pediatric Asthma Prevention and Management (2015-present)***

This program, which is a component of the larger CARD Program, aims at improving the capacity of community health care professionals to diagnose, treat and care for children with asthma in community health centers; increasing pediatric asthma awareness among school health providers, public health authorities and the general public; and improving self-management of pediatric asthma. The program seeks to achieve these goals through provider training, improving access to nebulizer therapy, and outreach to parents and the public.

C. Strategies

Programs conducted within the chronic disease portfolio have their own unique strategies (as detailed below), but they are linked by also several overarching strategies including:

- collaboration with government health policies and involvement with policy makers;
- building sense of ownership among local partners to ensure policy support and program sustainability;
- program approaches and designs evolve to better respond to changes in health needs
- focus on capacity building; and
- sharing of evidence-base program outcomes with policy makers and other stakeholders.

Chronic Disease Management

This three-year initiative, which was sponsored by Philips Healthcare, adapted several of the strategies employed in the China diabetes programs. Launched in Shanghai and later extended to Beijing, Guangzhou and Wuhan, the program was the first of its kind to target three chronic disease areas in China: heart disease, stroke and COPD.

Through the combined efforts of tertiary hospitals, community healthcare centers and home-based rehabilitative services in the four targeted cities, the project aimed to develop an innovative and sustainable model and infrastructure for chronic disease management, as well as building the capacity of community healthcare centers to provide long-term integrated management for chronic disease patients with the support of secondary and tertiary hospitals.

Key strategic approaches included:

- building chronic disease management capacity at community health centers through the training of health care workers
- improving patient self-management of chronic diseases
- providing post-stroke rehabilitation services with functional recovery outcome
- providing health promotion activities

Epilepsy

The original four-year epilepsy program, sponsored by UCB, was designed to be national in scope, reaching beneficiaries in 28 provinces, in all regions of urban and rural China. The program included a range of complementary strategies, including:

- improving service capacity and the quality of standard diagnosis and treatment for pediatric epilepsy through training and by promoting the application of current guidelines
- enhancing patient disease management through parent education and "Family Weekend" events
- reducing social stigma through public awareness and educational activities
- increasing the knowledge and skills of school health teachers regarding students living with epilepsy

The three-year (2017-2020) extension refined and expanded on these strategies, with a focus on:

- mobilizing the program's partnership network to establish an integrated epilepsy care system in targeted rural regions/provinces
- Working with education bureaus to train school health teachers on safe intervention during an epileptic seizure
- hosting events to increase public awareness on caring for children with epilepsy
- providing opportunities for the healthcare multidisciplinary teams to engage with parent education activities
- collaborating with CAAE on patient education activities
- creating an epilepsy transition care network, to include adult and pediatric neurologists, to improve the transitioning of patient care from teenage to adulthood
- utilizing media channels to disseminate information on epilepsy and the transition of care

Respiratory Diseases

In 2015, with the support of AstraZeneca, Project HOPE undertook a major new multi-prong initiative that focused on the prevention and management of respiratory diseases in China. The programs conducted under this broad initiative, which collectively have covered a very large nationwide population, have included several key strategies, including:

- building capacity and broadening understanding of respiratory diseases through the establishment of the China Alliance for Respiratory Disease (CARD)
- upgrading the skills and knowledge of health care providers in treating COPD and asthma (including pediatric asthma) as well as in conducting lung function test training for respiratory medicine technicians and health care providers
- increasing public and patient awareness about chronic respiratory diseases through education
- distributing medical equipment designed to improve the diagnosis and management of treatment at the tertiary, secondary, and community levels

- establishing respiratory medicine clinical practice quality control mechanisms at the national and provincial levels to strengthen clinical service for patients with respiratory diseases
- Organizing health forums for health policy makers to address barriers to health care access and health cost burdens that challenge the quality and accessibility for sound respiratory disease care

The initiative has provided specialized respiratory training through a variety of vehicles for selected health care professionals across China, with the aim of promoting early detection and enhancing treatment skills for respiratory illness. The program also provided on-site and on-line respiratory disease and lung function test training.

In addressing public and patient awareness, the program created a social media platform, with current information about chronic respiratory diseases; provided critical health information at community lung function screening campaigns; and introduced a pediatric asthma management app designed to help parents record and monitor their children's daily condition.

Finally, the program supported these training, education, and capacity-building activities with targeted donations of medical equipment – specifically lung function testing devices and nebulizers – to hospitals across China, and the establishment of nebulizer rooms within these facilities. This activity directly supports a recent national Health policy to include lung function tests on its list of "100 Appropriate Technologies for Rural and Primary Hospitals," and its campaign to have at least 30 percent of primary hospitals able to conduct simple lung function tests.

D. Results

Chronic Disease Management

This program focused on the health care system in four major Chinese cities – Shanghai, Beijing, Wuhan and Guangzhou. Within these cities, Project HOPE selected 13 tertiary hospitals and 23 community health centers (CHC) as program sites for enhancing the knowledge and skills of health care workers and improving self-management capabilities of patients with selected chronic diseases. Outcomes over the three-year program included:

- Approximately 1,400 health care workers at the CHC level participated in tailored training sessions, where they learned how to better manage patients. Post-tests showed a significant increase in knowledge following the trainings.
- Roughly 1,450 patients in hospital and CHC settings participated in training to improve their self-management capabilities, and received educational materials on hypertension, stroke, COPD and coronary diseases.
- Patients with coronary heart disease attended one-on-one sessions on self-management skills. Following the eight-week intervention, patients exhibited improved self-management ability and self-efficacy compared to the control group.
- Therapists at CHCs, after mentoring from rehabilitation experts, provided home-based rehab services for approximately 1,250 stroke patients.

- An additional 323 rehabilitation home assistants completed courses on how to provide safe and efficient home care for patients with stroke.
- The program successfully collaborated with Shanghai's Center for Disease Control and Prevention to conduct outreach education on stroke prevention and healthy life style in four districts of Shanghai.
- Through the program, more than 6,800 people participated in public education events on World Sleep Day and World COPD day and received educational materials.

Epilepsy

The original four-year "Rainbow Bridge" program resulted in an improvement in the capacity of health care workers who diagnose and treat epilepsy, improved skills for parents caring for children with epilepsy, and greater public awareness. Specific outcomes included:

- A nationwide partner network of 14 hospitals was created to conduct training for local and provincial health care providers. Training workshops reached 1,675 health care workers from 28 provinces – with most participants from local tertiary and secondary hospitals.
- The *Pediatric Epilepsy Diagnosis and Treatment Training Manual for Primary Health Care Providers,* adapted from the program training materials, was published and distributed to all training sites.
- To improve diagnosis and treatment standards for children with epilepsy, eight core courses related to pediatric epilepsy clinical practice were filmed and disseminated free of charge for pediatricians to study online.
- Partner hospitals conducted 77 educational sessions for 1,238 parents, providing them with information on basic epilepsy related treatment and useful home care skills.
- The program organized 12 family "Rainbow Educational Weekends, with such activities as children's games to enhance self-confidence, parent-children interaction activities, health educational sessions, psychosocial and behavioral counseling, and sightseeing.
- To improve public awareness about caring for children with epilepsy and to decrease misconceptions and negative social stigma about epilepsy, a public educational video was developed and distributed at school health programs, meetings, and conferences; during the family educational weekends; and by the partner network.
- Ten training workers were held at which 830 school health teachers taught the correct way to deal with a child who is having a seizure.
- Various public awareness events were held on International Epilepsy Caring Day each year, including public education, a patient salon and free consultation, journalist reports, and an international forum.

Results are currently being tracked against established targets under the three-year program extension.

Respiratory Diseases

At this time, these programs have a relatively short period in which to show results. However, there have been a number of promising outcomes including:

- With curricula designed by China's leading experts under the program, doctors and nurses have participated in internships, workshops and on-line trainings that are improving treatment skills for a range of respiratory diseases.
- The program has provided on-site lung function test training to physicians in 10 cities across China, as well as online training for primary health care providers in smaller cities. Lung function test quality control training workshops were also held in 30 cities, reaching professionals in 2,760 hospitals.
- Training has been provided, under a project focused specifically on pediatric asthma, for health care providers from 14 community health centers to initiate pediatric asthma nebulizer therapy, and health instruction was provided to more than 30 elementary school and kindergarten health providers.
- A social media platform developed under the CARD Program has reached more than 30 million people in China, with messages aimed at increasing public awareness about chronic respiratory diseases.
- Several thousand patients and members of the public have received information on respiratory diseases at community lung function screening campaigns.
- Local capacity for preventing, diagnosing and managing respiratory diseases has been strengthened through the distribution of lung function testing devices and nebulizers to several thousand hospitals, and the establishment of nebulizer rooms in these facilities.

As of summer 2017, the CARD program has achieved the following:

- *Health professional training:* 24,629 participants on online asthma and COPD training; 4,872 health care providers participating in 44 on-site face-to-face training sessions
- *Lung function training* has reached 51 cities, 3,600 hospitals, and 18,000 health care providers
- *Lung function testing equipment:* the project has donated 1,107 pieces of portable testing equipment and 4,100 nebulizers to 1,107 tertiary hospitals; total nebulizer donations to secondary and community health centers was about 60,000 pieces.
- *Pediatric asthma clinics in the communities:* 3,349 clinical visits conducted at 14 community health centers for asthma care. Among these visits, 384 patients have joined the community-based management care model for asthma community care follow up. The care model indicates that patients treated in a community health center can save 1.4 hours of waiting time compared to those going to a tertiary hospital for a clinical visit. In addition, the medical cost of asthma community health service is 26% lower than when treated in a tertiary hospital, while these patients have achieved a similar asthma-controlled rate (76%) from community care. The experience and outcome of the asthma community care model study was published in the *British Medical Journal* in August 2017.

In addition, this initiative has successfully brought together government officials, university researchers, and clinical experts to spotlight issues related to the epidemiology, health economics, technology, clinical diagnosis and treatment standards of chronic respiratory diseases. It is also working with the national respiratory disease quality control center to establish indicators covering the major respiratory diseases and techniques.

3. Shanghai Nutrition Institute
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Introduction

In 2007, Project HOPE and Abbott – a U.S.-based health care company that has been a HOPE supporter and partner since 1970 – combined their resources and expertise to address some of the significant challenges related to pediatric nutrition in China. This collaboration resulted in the establishment of the Abbott Fund Institute of Nutrition Science (AFINS) at the Shanghai Children's Medical Center (SCMC).

Following a successful three-year pilot program, Project HOPE, Abbott, and SCMC agreed to a three-year program to extend this initiative, through June 2014, with the aim of ensuring AFINS's long-term sustainability, expanding the benefits to other areas of China where pediatric nutrition is an even greater public health challenge, and continuing to enhance the standard of patient care and quality of life for children with nutritional needs.

Need/Rationale

Nutrition is an essential key to a child's development, and children with several illnesses require extended nutritional support to promote disease recovery. Although China has taken measures to meet children's nutrient needs, the country has faced serious nutritional challenges. A review of data in 2007, when the AFINS program was being developed, found that the malnutrition rate for children in China was about 9.2 percent. Moreover, 16 percent of children younger than five years of age were categorized as underweight, and it was estimated that 32 percent of these malnourished children would not be able to grow normally in their later life. Malnourishment in rural areas was even more problematic. According to a 2005 study, the under-nutrition rate for children under five was nearly 30 percent in the rural provinces of Yunnan, Guizhou, and Qinghai.

Additionally, 2007 data found that some 11 percent of children in China were overweight, with the problem more pressing in urban areas and the North region. A survey conducted in 2002 found that obesity had risen 39 percent over the previous decade, and that 20 percent of adolescents were found to be overweight. Malnourishment and obesity are two extremes that have a tremendous impact on the general wellbeing of children. Public attention and health education to lessen the problem are important strategies to ensure the healthy growth of children.

Problems related to nutrition can be compounded in the hospital setting. For a hospitalized child who suffers from imbalanced nutrition or becomes malnourished due to illness, recovery from disease can be seriously hindered, especially when the child is critically ill. In addition, some children suffer from diseases that could impact nutrient intake and metabolism, such as cancer or acute infection, short-bowel syndrome, gastroschisis, major trauma, and prematurity. These clinical conditions influence the intake and utilization of nutrients in the body, and require clinical attention to provide timely nutritional support to reduce the chances of malnourishment and promote healthy growth. This situation has compelled medical professionals to pay particular attention to children's nutrition both in the hospital and in the community health sectors.

When the AFINS program was in development, clinical nutrition was a newly developed medical specialty in China. Although it was under rapid development as the result of medical advancement, professional recognition of its importance to a patient's overall recovery had not been well addressed. In addition, because nutritional support was a newly established specialty in China, most hospitals did not pay great attention, nor had they established a strategic plan to further develop this specialty. Among the greatest associated challenges: a limited number of trained dietitians and clinical nutritionists, insufficient manpower allocation, limited independent clinical service, and insufficient resources for conducting clinical research.

Within China, the city of Shanghai was a leader in developing the specialty of pediatric nutrition, under the visionary guidance of Dr. Cai Wei, a widely respected pediatric GI surgeon and now Director of the Shanghai Institute for Pediatric Research. Dr. Cai was among those with whom Project HOPE and Abbott worked closely in the development and implementation of AFINS, and he remains a strong advocate for the institute.

At the time AFINS was being developed, SCMC had secured a reputation for being able to address a wide variety of serious diseases. The complexity and large volume of the patients seeking medical treatment at SCMC thus created an urgent need to provide supportive care while treating their disease. Nutritional support at SCMC, as elsewhere in China, had developed at a slow pace due to a lack of recognition by the clinical staff, a shortage of technical strength, and insufficient manpower support. When the AFINS program was initiated, in fact, the ratio of dietitians to hospital beds at SCMC was about 3:500. This manpower deficiency was compounded by a lack of standardized guidelines – at SCMC and in other pediatric care facilities – and a shortage of clinical

or basic researchers to address issues related to nutrition intake, metabolism, and the impact of a specific nutrients to the pediatric population.

With SCMC intent on developing itself into a hospital with advanced medical specialties and increased service volume of critically ill children, it was deemed essential to pay greater attention to children in critical care who need more nutritional support than children with less complicated clinical status. This required SCMC to expend more effort in addressing the child's holistic needs during acute illness recovery, especially in the aspect of nutritional support.

Goals and Objectives

The goal of AFINS was to enhance children's nutritional service at SCMC, with the aim of creating a recognized center of excellence in pediatric nutrition at the hospital. The project was designed to incorporate the concepts of modern nutritional science and clinical services, as well as to address awareness for the community about the importance of pediatric nutrition. The project would focus on creating a supportive environment, increasing public awareness and knowledge in nutrition and food selection, training health services providers with nutrition aspects, creating standardized clinical guidelines for clinical nutritional support, and conducting nutritional researches to generalize new knowledge and data in nutrition for Chinese children and health care providers.

Beyond SCMC, it was hoped that the impact of the project would eventually extend to hospitals and schools elsewhere in Shanghai and beyond, through health professional training, nutrition education and counselling, and public awareness. It was envisioned that AFINS would supervise the testing of school-based education and community-based nutrition approaches among children and adolescents, in participating schools and communities.

Specific Phase I objectives for the initial three-year project included:

- Developing and testing clinical nutrition support guidelines for various intensive care units within SCMC;
- Increasing the capacity of health care professionals at SCMC to advance their practices in clinical nutrition support;
- Building the capacity of SCMC's nutritional research unit to conduct clinical and basic research and to provide evidence-based information to improve nutrition support services; and
- Exploring the possibility of integrating nutrition support training in the curriculum of the Shanghai Jiao Tong University School of Medicine's Nutrition Department.

Phase II of the program (2011-2014), refined these goals and objectives. Building on the accomplishments of AFINS during its initial three-year term, the goal of the extension was to identify and address unmet needs in pediatric clinical nutrition by strengthening the capability of pediatric health care providers in clinical nutrition support, enhancing the research process that conveys translational research finding to practice, establishing local scientific data to support clinical decision-making, and increasing public awareness of childhood obesity and knowledge of nutrition as it relates to children's health in China.

Phase II objectives included:

- Strengthening SCMC's clinical capacity to address pediatric nutrition issues by implementing evidence-based clinic nutrition support guidelines and health professional training;
- Utilizing SCMC's AFINS platform for outreach training to enhance clinical care;
- Promoting standardization of nutrition support guidelines by enhancing recognition of the importance of clinical nutrition as a key clinical specialty for disease recovery;
- Enhancing the clinical nutrition capacity at seven collaborating hospitals by extending SCMC's practice model in clinical nutrition;
- Enhancing nutrition research capacity at SCMC, with a focus on critical care, oncology treatment, and post-surgery for congenital GI abnormality and heart disease;
- Providing a scientific platform in pediatric nutritional research to nutrition specialists at various hospitals across China, to explore the current clinical nutrition topics and data to support nutrition practice for children;
- Enhancing the quality of clinical dietitian education and curricula to expand the role of dietitians in clinical service, health promotion and disease prevention; and
- Identifying nutritional risks among children from less developed areas in China to educate teachers and school principals to appropriately manage meal preparation for school-age children in the mountain areas.

Strategies

AFINS was designed to utilize the expertise of international consultants in a range of areas, including improvements in clinical service and research; the upgrading of pertinent hospital equipment; and the cultivation of college students majoring in nutrition, with plans to enhance the existing foundation in nutrition and extend the core components of this specialty to others.

Program strategies under Phase I included:

- Utilize the expertise and recommendations of the program's Senior Technical Advisory Group (SENTAG);
- Utilize HOPE's train-the-trainer methodology;
- Enhance in-house awareness of the role of nutrition to illness recovery through training;
- Compile and implement clinical guidelines in different clinical wards and ICUs;
- Cultivate unit-based nutrition master trainers to promote the practice of nutrition;
- Identify appropriate clinical research topics and support SCMC in conducting the research; and
- Upgrade nutrition training/research/clinical work resources.

Between 2011-2014, AFINS extended the training, research and clinical practice established in Phase I to an additional seven children's hospitals in China. The purpose of the extension was to continue improving SCMC's capacity in nutrition practice, including clinical research, nutrition screening, health care professional training and public education for nutrition related risk. These seven leading children's hospitals collaborated with AFINS and Project HOPE to address

nutritional practice issues. A number of training sessions were planned, in order to maintain high quality and testing standards.

Specific Phase II strategies included:

- Extend outreach training from SCMC to seven other children's hospitals in China;
- Promote nutrition research in a variety of Chinese pediatric health settings;
- Launch a formal Clinical Dietitian education program for the Nutrition Department of Shanghai Jiao Tong University School of Medicine – enhancing clinical nutrition and dietitian faculty training, developing local Clinical Dietitian talent, and upgrading university level curriculum;
- Promote healthy nutrition through public education;
- Advance the state of nutrition intervention specifically in rural China;
- Implement Nutrition Risk Screening at SCMC and other collaborating partner hospitals in China;
- Implement clinical guidelines for critically ill children in the ICUs of SCMC and partner hospitals; and
- Conduct fellowship training in pediatric clinical nutrition practice and management.

Results

AFINS was established to advance pediatric clinical nutrition in China by training a cadre of health care professionals and to enhance holistic care, particularly nutrition support, for children admitted to SCMC. During Phase I, the program enhanced SCMC's capacity in nutrition research, established a foundation for integrating clinical service with nutrition, and demonstrated the impact of nutrition support clinical practice for children with special needs.

Specific accomplishments under Phase I included:

Capacity Building

Through AFINS, the nutrition science community in China was able to support and develop institutional capabilities and to nurture future talent in clinical nutrition practice. Examples of the impact of AFINS on clinical nutrition practice in China, documented at the conclusion of Phase I, included:

- The Pediatric Clinical Nutrition Department was established at SCMC, allowing for an increase in full-time nutrition specialists and providing office space equipped to store and utilize key equipment for the screening and diagnosis of patients.
- Nutrition Support Guidelines for Infants and Critically Ill Children were revised. Prior to AFINS, there were two national guidelines – one for infants and one for critically ill children. Under AFINS, nine sub-specialty guidelines were created, disseminated, and integrated into clinical practice at SCMC. All of these guidelines were shared among health professionals in the nutrition field.
- SCMC became a hub for professional training and outreach in pediatric nutrition support. During Phase I, more than 1,100 health care professionals – 176 dieticians, 756 doctors and

168 nurses – received nutrition training at SCMC, in addition to 29 fellows from less developed tertiary pediatric or maternal health hospitals and several department directors of clinical nutrition from other children's hospitals around China.

- Daily, nutrition-focused patient rounds were implemented. At the end of Phase I, trained clinical nutritionists were making daily patient rounds in the cardiac, pediatric and neonatal ICUs as well as the hematology oncology and pediatric surgery departments. This practice supported the integration of daily clinical nutrition practice and allowed clinical nutritionists to assist the physicians and other medical specialists in making appropriate decisions regarding nutrition support. In addition, by the end of Phase I, all children admitted to the hospital were receiving nutrition risk screenings and proactive intervention was provided if the child was malnourished.
- Nutrition research capacity was enhanced. As a result of the interest generated by the project, a laboratory for nutrition research was established to conduct additional projects focused on identifying and addressing existing clinical issues and gaps in nutrition care. The research effort provided an opportunity for physicians from different clinical specialties and departments to work together in order to assess, diagnosis and evaluate the nutrition-risk related illnesses.
- An Obesity Clinic was established at SCMC and staffed with a general nutritionist, metabolic endocrinologist, and dietitian to evaluate patients who seek clinical consultation for their nutrition illness.

Improvements in Overall Patient Outcomes

During Phase I, nearly 2,300 nutrition consultations were conducted for children admitted to the intensive care units at SCMC and at least 500 patients benefitted from AFINS-supported nutrition equipment – resulting in improved disease diagnosis and treatment. AFINS contributed to a documented 27 percent reduction in malnutrition among children admitted to SCMC by providing aggressive nutrition intervention, health teaching, and clinical recommendation to clinicians who were responsible for the child's admission.

Equipment Utilization

With the support of AFINS, 10 pieces of major equipment for nutrition research were purchased and used for research projects or clinical tests. This equipment enhanced the clinical capacity in diagnosis and evaluation for patients with nutrition deficiencies or metabolic disorders.

Research

Phase I of the AFINS research generated a common interest to explore the status of pediatric nutrition for China. The SCMC Clinical Nutrition Department published eight papers in international journals, 13 papers in Chinese journals and 12 abstracts for international conferences.

In view of these successes, Project HOPE, the Abbott Fund and SCMC agreed in 2011 to extend AFINS for an additional three years – with a focus, as previously described, on continuing to improve and institutionalize SCMC's capacity in nutrition practice, and expanding AFINS's training, research and clinical practice to other participating children's hospitals in China.

Specific Phase II accomplishments included:

Outreach Training Extension

AFINS collaborated with hospitals in Guangxi, Kunming, Zhengzhou, Suzhou and Shanxi, Zhejiang and Chengdu to conduct clinical nutrition related health care professional training. This outreach activity enhanced professional communication and understanding of clinical nutrition practice. By the end of Phase II, 3,959 health professionals from 62 hospitals in 19 provinces had received nutrition training under the program, and 30 fellows had received one-year clinical nutrition training at SCMC.

> *"The seminars and experts from AFINS have provided updated advances for young clinical talents to grasp and latest practice standards, and to develop their capacity in exploring local nutrition issues and identify solution to narrow gaps in practice."*
>
> ***Dr. Xie Qi, Director of Nutrition Department, Guangxi Second People's Hospital***

AFINS Research Activity

Publication of AFINS research results has encouraged the Chinese hospital community to develop and enhance hospital-based nutritional assessments and standard of care in clinical nutrition throughout the country. During Phase II, and with AFINS support:

- 29 research papers were published in domestic journals
- 27 research papers were published in international journals
- 27 research paper were presented or published at international conferences and journals
- 47 research proposals were accepted
- 76 abstracts were accepted for oral presentation and posters at conferences

Nutrition Research Beyond SCMC

Prior to this initiative, incomplete nutritional data hindered the progression of clinical nutritional practice. AFINS provided research grants for a number of hospitals from less developed areas of China. These AFINS-sponsored research projects addressed problems regarding neonatal nutrition, nutrition of critically ill children, child obesity and nutritional need in China's rural areas.

Clinical Dietitian Education

The program supported faculty development and international exchange for nutrition majors at the Shanghai Jiao Tong University School of Medicine's Nutrition Department. AFINS sponsored an education forum, with 52 nutrition faculties from eight medical universities participating. The forum compared curriculum hours for dietetic courses and years of program required for a Bachelor of Science degree; discussed the challenge and advantages of having a nutrition major within the

medical school; and reached a consensus in curriculum design and years required for a BS in nutrition. All participating schools agreed that a four-year program is suitable for cultivating a dietitian with a bachelor degree.

Public Education

With AFINS support, SCMC recruited children who had been treated at the Child Obesity or Child Endocrinology clinics for obesity or diabetes to return to the hospital and receive free examination and consultation. AFINS experts were also invited by the media to do TV interviews, newspaper columns and public to deliver free lectures on nutrition and dietary management for overweight or obesity.

Nutrition Intervention in Rural China

To respond to the need for improved dietary management for children, AFINS faculty from the Nutrition Department of Shanghai Jiao Tong University School of Medicine, Nanxishan Hospital of Guangxi Zhuang Autonomous Region and Kunming Children's Hospital jointly conducted a dietary intervention project in 2011-2013. The aim was to assess the nutrition status and dietary conditions of primary school students in the rural western part of China, and recommend appropriate interventions. At the end of 2013, the compliance status of participating schools was reevaluated, and the outcome indicated that the underweight rate had been reduced significantly.

Nutrition Risk Screening at SCMC

By the end of Phase II, due to the use of STAMP (Screening Tool for the Assessment of Malnutrition in Pediatrics), 100% of children admitted to SCMC received nutrition status assessment upon admission. SCMC led the clinical application of the STAMP tool at SCMC and encouraged other outreach hospitals to follow. SCMC was the first pediatric hospital in China using STAMP as a standard admission screening process for all children.

Nutrition Consultation at SCMC

The number of patients at the nutrition consultation outpatient clinic increased from 154 at the end of Phase I to 497 at the end of Phase II, with parents paying more attention to the impact of nutrition on their child's health. At the inpatient units, clinical consultation become more popular because clinicians recognized the difference in nutrition consultation and an intervention provided by clinical nutritionist. During the full six-year AFINS program, 7,553 children received nutrition intervention during hospitalization.

"AFINS has contributed so much to develop the specialty and it really made a difference to support the development of SCMC clinical nutrition with fruitful outcomes. Most importantly, AFINS has generated enough passion and attention to explore approaches to improve pediatric nutrition practice with evidence-based information and research."

Dr. Cao WeiXin, Director of Nutrition, Shanghai RuiJin Hospital

Clinical Guidelines for Critically Ill Children

After implementing nutrition clinical guidelines at the hospital, the program saw improvements in clinical outcomes. More than 85% of critically ill children received nutrition intervention in the last full year of the program. Patient infection rates, length of stay at hospitals, and cure rates were improved compared with patients without nutrition support. A study at the end of project also found that implementation of the clinical guidelines, together with nutritional support intervention at SCMC, directly impacted the nutritional status. Among hospitalized patients, 27.3% had high nutritional risk when they were admitted into the hospital, compared with 5.1% at discharge.

Fellowship Training

AFINS accepted fellows from less developed areas to receive training at SCMC from three months to one year, to become more familiar with pediatric nutritional medicine. Through mentorship, fellows learned clinical nutrition support for inpatients, nutrition consultation for outpatients (both on malnutrition and obesity), dietary management, and the necessary skills to provide better nutrition to children with their faculty. The fellowship program provided valuable experiences for fellows to observe the practice of nutrition medicine specialists – and contributed to the success of the AFINS program.

"Clinicians who attended training organized by AFINS became more familiar with the tools for pediatric nutrition assessment than other colleagues in the field."

- ***Dr. Bai Jigen, Director of Shanxi Children's Hospital***

Challenges/Lessons Learned

AFINS was an innovative program designed to support advances in pediatric clinical nutrition in China. The program was well received among partners and collaborating hospitals. This enthusiasm for advancing clinical nutrition practice allowed successful implementation of the project. The concept of pediatric clinical nutrition occurred at an opportune time, as the China medical establishment had achieved advancements in disease treatment skills, but associated supportive care to enhance holistic disease recovery – attention to nutrition, utilization of different

nutrition support formula, etc. – was lagging at the time. The project incorporated clinical guidelines, nutrition status assessment, clinical nutrition research, clinical faculty training, public education, overweight and obesity clinic, and nutrition forum to provide a comprehensive intervention to enhance the pediatric clinical nutrition practice.

This seven-year project has achieved positive outcomes, but there were some challenges encountered during project implementation, including:

- There was a limited number of staff in clinical nutrition practice;
- There was a lack of routine patient assessment and consultation in various ICUs for clinical nutrition, to identify children with nutrition risk at an early stage;
- The role of clinical dietitians was not clearly defined, limiting their functions and responsibilities in hospital practice;
- Limited pediatric clinical research was available to support knowledge generation and changes of clinical practice; and
- There were insufficient international exchanges to upgrade the practice standard.

Lessons learned from this project included the following:

- Partnership and ownership can help motivate staff and other program participants, promote the sharing of outcomes among partners, and ensure the success of the project.
- Local leadership engagement is key to guaranty the success of a multipartite partnership. Having local or hospital leader engage in the project is critical in partner communication, staff and equipment allocation, and problem-solving.
- Timely tracking of program progress is key to ensure that periodic targets are met without delay.
- An effective program management structure is necessary to ensure that all participating partners are familiar with project objectives, targets, and interventions.
- Senior Technical Advisor Group members must be well utilized to provide timely professional advice and recommendation, to help the project staff modify the scope of the project, and to resolve any problems that might arise.

"AFINS community involvement meets our goal to teach parents to raise their children in a scientific way, using modern nutrition knowledge for cultivating the next young generation. It is important to teach parents and public to address proper nutrition selection and understand how nutrition can play an important role in health. Public education is important and AFINS provides mechanism to mobilize the community, health care providers, and schools to address the importance of nutrition. I am proud of Project HOPE implementing this AFINS program to benefit people in the nation."

- ***Dr. Huang Hong, Professor of Shanghai Jiao Tong University, School of Medicine and Chief Physician Shanghai Health and Family Planning Commission***

4. National Rehabilitation Program
Primary Author: Cary Kimble
Contributors: Tom Feng, Min Hu, Qian Geng

Introduction

On May 12, 2008, a major earthquake measuring 8.0 on the Richter scale struck Sichuan Province, China, resulting in mass destruction of homes and lives. Two weeks after the earthquake, Project HOPE's President and CEO, who was on a previously-scheduled trip to Shanghai, led a small assessment team to Chengdu, the capital city of Sichuan Province, to conduct a situational review of the damage and to meet with local officials and leaders. The group learned about some of the rehabilitation needs created by the earthquake, and began initiating a long-term response. The subsequent China Rehabilitation Program (2009-2011) focused on Dujiangyan City, which was in the area most heavily impacted by the disaster. With a population of 600,000, Dujiangyan City experienced 4,000 deaths and more than 10,000 injuries.

Nearly five years later, on April 20, 2013, Sichuan Province suffered another serious earthquake, measuring 7.0 on the Richter scale. The epicenter of the 2013 quake was Ya'an City, approximately 72 miles from Chengdu and close to Tibet. The disaster left 196 people dead and 13,484 injured – more than 1,000 with serious injuries and more than 2,000 in need of rehabilitation services. In all, more than 1.72 million people were affected by the 2013 quake. With a population of 1.5 million, Ya'an is the poorest city in Sichuan Province.

Project HOPE, having gained valuable experience establishing and strengthening programs to provide support to victims of the 2008 earthquake, made a quick decision to respond to the Ya'an disaster, leveraging lessons-learned to provide support to people in critical need. The response to both disasters confirmed that access to appropriate and effective rehabilitation services is critical in the months immediately following an injury, in order to reduce disability, and, over the long term, to achieve full recovery.

Need/Rationale

Following the initial site visit to Chengdu, after the May 2008 earthquake, Project HOPE mobilized and sent a multi-disciplinary technical team to Sichuan Province, with expertise in emergency disaster medicine, rehabilitation, prosthesis, psychology, pediatric orthopedics, pediatric medicine, nursing, and public health. The team was tasked with further assessing the state of local rehabilitation services, and exploring opportunities for a sustainable rehabilitation program. During the assessment, the technical team found an urgent need for rehabilitation services and equipment as well as a need for improved quality of rehabilitation services provided in community clinics.

Shortly after the 2008 earthquake, the Ministry of Health (MOH) of China developed a national strategy for improving rehabilitation service capacity in China. The strategy aimed to improve rehabilitation services at the community, city, provincial, and national levels by standardizing rehabilitation education, training and service guidelines, as well as establishing an accreditation

mechanism. Following the disaster, the MOH requested that Project HOPE join this strategy to build rehabilitation capacities in China.

Similarly, after the Ya'an earthquake in April 2013, Project HOPE conducted a needs assessment, this time with the assistance and involvement of the Sichuan People's Hospital Department of Rehabilitation Medicine. The team found that there was only one tertiary care hospital – Ya'an First People's Hospital – and only 96 health care workers trained to provide rehabilitation services for the 1.5 million residents of Ya'an.

The assessment team also learned that a Department of Rehabilitation Medicine at Ya'an First People's Hospital – with 20 rehabilitation service providers, including three therapists – had been established just one month before the Ya'an earthquake. However, its focus was on Traditional Chinese Medicine such as massage and acupuncture. The city's other major hospitals – Ya'an TCM Hospital, Ya'an Red Cross Hospital, and Army Hospital – had no rehabilitation departments. These findings suggested an acute shortage of rehabilitation services, similar to the situation in Dujiangyan City after the 2008 earthquake.

Goals and Objectives

In response to the request for assistance by the MOH in 2008, on behalf of the earthquake victims in Sichuan Province and others in China in need of rehabilitation services, Project HOPE developed a three-year program to improve rehabilitation services – initially for earthquake-affected residents of Sichuan Province, but impacting others in need of these services. The goal of the program was the development of an accessible, affordable, accountable, and sustainable community-based rehabilitation service in selected communities – a model that could be replicated in other areas and scaled to serve the national strategy which had been recently developed. The three-year program, which was implemented in Dujiangyan City, had the following objectives:

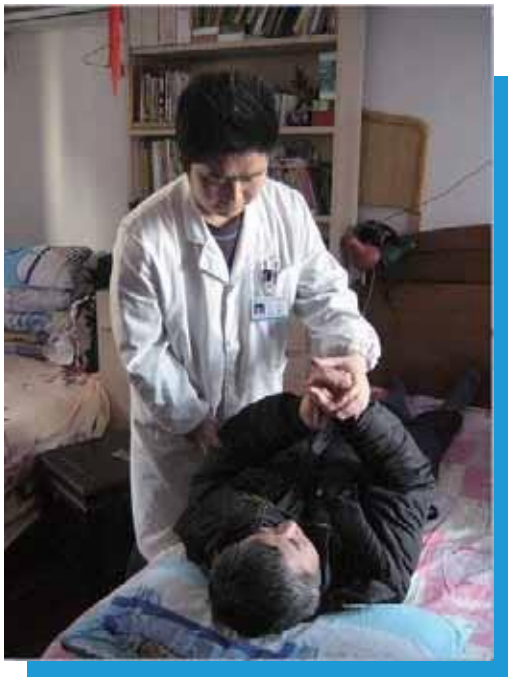
- Building capacities of community rehabilitation services in providing holistic rehabilitation services to earthquake affected patients in Dujiangyan City
- Developing and testing a model for training rehabilitation professionals
- Improving the capacities of rehabilitation services in selected hospitals to better support community-based rehabilitation services in Dujiangyan City
- Standardizing and validating national rehabilitation training curricula and rehabilitation service guidelines for community and city level rehabilitation services
- Creating and sustaining a supportive environment for scaling up a community-based rehabilitation service model and institutionalizing the rehabilitation service guidelines in the country

Similarly, the goal of the 2013 program was to contribute to the improvement of the health and well-being of people injured in the earthquake by improving the quality and availability of rehabilitation services in Ya'an. The following were specific program objectives:

- Strengthening the knowledge and skill of rehabilitation service providers in Ya'an City
- Expanding the availability of rehabilitation services in Ya'an City
- Establishing a practical and effective referral model for patients to better serve the short-term and long-term need for rehabilitation services
- Raising knowledge and awareness of rehabilitation services among earthquake victims, family members, and community residents
- Adapting the rehabilitation service guidelines previously developed by Project HOPE to meet the needs for rehabilitative services in Ya'an City

Strategies

The original China Rehabilitation Program was a partnership between Project HOPE and the MOH in China, with technical support from the Peking University Third Hospital. The program was formally initiated in January 2009 and concluded in December 2011. An official program launch ceremony took place in China on the eve of the one-year anniversary of the earthquake in May 2009 and was publicized by major media.



Based on the assessment findings, the China Rehabilitation Program was designed to focus on local capacity building, rehabilitation service system strengthening and advocacy. Tailor-made rehabilitation training and on-site coaching were developed to increase rehabilitation service providers' knowledge and to provide hands-on opportunities to practice skills and critical thinking. The partnership with the MOH, in tandem with advocacy efforts, helped the program gain policy support for program scale-up and sustainability.

The program conducted training workshops and on-site coaching sessions for city/community rehabilitation service providers, as well as advanced training for master trainers and overseas fellow sessions. The program resulted in the development of certain key resource materials, including Rehabilitation Training Curriculum for city/community service providers, a National Orthopedic Rehabilitation Reference Book, City/Community Rehabilitation Service Guidelines and Patient Education Materials. The 2009-2011 program also donated 99 pieces of rehabilitation equipment to the Dujiangyan Medical Center (formerly named Dujiangyan People's Hospital). In addition, the program worked with the local hospitals and community health service centers to test a referral mechanism.

The program engaged with health authorities at both national and local levels to advocate for scaling up the newly developed and tested rehabilitation training model to reach more areas, and for a rehabilitation service provider accreditation mechanism. Additionally, the program developed a national rehabilitation policy review, which was shared with policy makers; shared program information with policy makers on a regular basis; and organized a policy maker observation study tour and an International Seminar on Rehabilitation Continuing Education and Services.

The HOPE program team developed a program monitoring and evaluation (M&E) system and tools to collect program data and track program progress, and shared program M&E experiences at an American Public Health Association (APHA) annual conference. The program also developed and disseminated several issues of a newsletter and worked with the *Health News Daily*, a MOH-affiliated national newspaper, to disseminate program information to stakeholders and abroad.

The 2013 program, following the Ya'an earthquake, was conducted in cooperation with the National Health and Family Planning Commission (NHFPC, formerly the MOH). The one-year program adapted the Dujiangyan model, with a focus on building local capacity, strengthening the rehabilitation service system and improving the policy environment. A tailor-made training and on-site coaching approach was designed to increase the rehabilitation service providers' knowledge, skills and clinical thinking. The program also adapted the existing M&E tools to track program progress and ensure program quality and sustainability.

Specific program activities included: training sessions for physicians and rehabilitation service providers from 26 hospitals in Ya'an City, in cooperation with the Ya'an Bureau of Health (BOH); three-month fellowships at Sichuan People's Hospital for eight rehabilitation service providers from Ya'an City and neighboring counties; a patient education campaign at the Ya'an Hospital of Traditional Chinese Medicine, focusing on Orthopedic and Cardiopulmonary Rehabilitation; the design and testing of a three-level (provincial, prefectural and community) rehabilitation referral network, in accordance with national referral policies, with 11 hospitals participating; and the revision and distribution of the nationally recognized standard rehabilitation training materials, including service guidelines for community physicians and patient education materials on Orthopedic Rehabilitation, Cardiopulmonary Rehabilitation and Neurological Rehabilitation.

Results

The China Rehabilitation Program resulted in improved rehabilitation services – initially in Dujiangyan City, later in Ya'an City, and subsequently in other communities where elements of the model has been adopted. More importantly, these enhanced capabilities have resulted in improved outcomes for rehabilitation patients.

Before 2008, Dujiangyan People's Hospital did not have a rehabilitation department. After the earthquake, the hospital was designated by the city government as the primary hospital providing rehabilitation services to earthquake-injured patients. The program helped the Dujiangyan Medical Center set up the rehabilitation department by donating equipment and training and coaching service providers. Today, the rehabilitation department is fully functioning and provides services to patients.

Since its start, the program has gained policy support from the MOH, and the National Orthopedic Rehabilitation Reference Book developed by the program has become a MOH recommended reference for rehabilitation service providers nationwide. The rehabilitation training curriculum and rehabilitation services guidelines developed and tested by the 2009-2011 program was adapted and used under the Ya'an City project – and was recommended by the national Ministry of Health to be used in other areas in China.

The program advocated for a national accreditation mechanism for rehabilitation service providers, which has contributed to rehabilitation policy formulation. To support and collaborate with the MOH policy promoting a "push forward referral mechanism between general hospitals and community hospitals," the program worked closely with the MOH Department of Medical Administration and key experts to reformulate referral guidelines and started referral operations.

A report on the 2009-2011 project listed the following results:

- 66 rehabilitation service providers at the national, city and community levels demonstrated and applied increased knowledge and skills in their daily work after participating in fellowship, training and coaching activities
- 184 earthquake injured patients received intensive and comprehensive in-patient rehabilitation services from the trained providers
- 1,870 patient/family members, community health workers and members, benefited through patient education and public education activities
- Six Chinese policy makers observed and exchanged information with US colleagues in rehabilitation training and services, and referral and accreditation mechanisms
- 80 Chinese policy makers, rehabilitation experts and service providers participated in discussions on rehabilitation continuing education and referral mechanisms at an international seminar
- 80% of hospitals in Dujiangyan City used the rehabilitation service guidelines developed by the program
- 100% of hospitals in Dujiangyan City used the program training materials and curriculum
- 85% of trained service providers reported improved performance by applying the knowledge and skills acquired from the trainings

The one-year Ya'an program successfully built the linkage between Sichuan Provincial Hospital and local hospitals in Ya'an City, with patients now being appropriately referred upward and downward in the system. The program also resulted in the intensive training of 57 rehabilitation service providers from 26 hospitals of two districts and six counties in Ya'an City; the creation of a three-level referral network; treatment of 156 patients injured by the earthquake and 1500 patients with common chronic diseases; and education of some 3,000 community residents through NHFPC recognized materials.

The Ya'an program was overseen by a Senior Technical Advisory Group, most of whose members were from the Chinese Association of Rehabilitation Medicine. They encouraged the government to focus more on rehabilitation interventions in the early stages following an earthquake. Through their continuous efforts, the promotion of the establishment of nationwide rehabilitation service network was identified by NHFPC as one of its top priorities.

Challenges/Lessons Learned

The greatest challenge faced by Project HOPE in undertaking this initiative was the need for very quick action in the wake of a major natural disaster, when resources and information were lacking and difficult to obtain – and when lives and health were at greatest risk.

Project HOPE addressed the resource challenge by appealing immediately to private donors for assistance on humanitarian grounds. This appeal was met with a positive response – first by a large number of generous individual donors, and soon after by several corporations, many of which had supported HOPE's previous long-term work in China. It was this private support that enabled Project HOPE to mobilize quickly, sending assessment teams to the affected region to determine needs and to meet with local officials and providers to develop an appropriate response.

"As the water shapes itself to the vessel that contains it, so a wise man adapts himself to circumstances."
(Confucius)

The gap in current and critical information in the immediate aftermath of the earthquake was addressed by the assessment teams, but in 2008 the challenge in developing an effective long-term response plan was compounded by the lack of a national rehabilitation strategy and a coordinated nationwide rehabilitation system. The China Rehabilitation Program (2009-2011) was developed, in part, to help meet that deficiency. As it generally is, HOPE was benefitted by the commitment of a broad and dedicated consortium of public and private organizations, without which the program could not have succeeded. Major program implementing partners included Project HOPE, the Chinese Ministry of Health, Sichuan Provincial Health Bureau, Dujiangyan City Health Bureau, Chinese Association of Rehabilitation Medicine, Peking University Third Hospital, Sichuan People's Hospital, and 11 hospitals in Dujiangyan City.

The China Rehabilitation Program, including the Ya'an initiative, successfully piloted a capacity building model for rehabilitation services at community and city levels, which included training, standardized service guidelines and a referral system, and demonstrated positive outcomes. The establishment of a national rehabilitation service provider accreditation mechanism will further

enhance rehabilitation services, requiring continued multi-sectoral collaboration and efforts, including strong support from government health agencies at all levels.

Testimonies

Speaking in his role as an implementing partner under the original initiative, Dr. Fan Jing, Director of General Office in the MOH Department of Medical Administration, commented: "The China Rehabilitation Program is the sole international cooperation in the field of Rehabilitation Medicine between MOH and NGOs. The Project HOPE program team has actively built interaction with the government and helped the government effectively address challenges by using its strong governance capacity and professional skills."

Regarding HOPE's program in Ya'an, Dr. Zhou Changhua, Deputy Director of the Ya'an BOH, said, "Ya'an is a less developed area in Sichuan Province, with little awareness of modern rehabilitation medicine. We really appreciate Project HOPE's work and have vowed to fully support the earthquake response program."

IV. Lessons Learned

Introduction

This section touches upon a few overarching lessons learned by Project HOPE over the course of its work in China. This short list of lessons both reinforces observations described in the individual sections and accents themes that the authors believe are especially important. It is hoped that other Global NGOs, bilateral and multilateral agencies, and globally minded health care systems and enterprises might find these lessons useful.

Lesson 1

> *Effective collaboration is possible between organizations of different countries with totally different socioeconomic conditions, political history, and traditions as long as there is a "partnership spirit" that enables objectives and strategies to be adjusted as challenges and new opportunities arise.*

Whereas written agreements should define basic goals and parameters, strong working relationships at all levels were most responsible for any successes achieved by China HOPE partnerships. From the beginning, HOPE engaged Ministry of Health and Ministry of Education leaders, University Presidents and faculty, hospital administrators and clinicians at the working level in the various programs. The Chinese side in turn empowered Project HOPE as a partner in major decisions. Periodic sharing of evidenced based programming, mutual problem-solving and addressing of issues were key components that promoted program success and sustainability. By virtue of the written agreements, HOPE started as partners; over the years, we became colleagues and friends.

Lesson 2

> *A "well-timed entry," partner selection, cultural sensitivity, trust building, and a phased approach are critical to achieving success in China.*

"Timing" ("first-in")

Being among the first agencies of its kind to work in China was an advantage to both HOPE and its China partners. Both sides were able to "ride" the forces for change in health systems stimulated by China's national policies of economic modernization and the "open door" to the west. HOPE was able to attract financial support from multinational companies wanting to expand in China. China HOPE partners too found new avenues of support from Provincial Governments and, over time, from the Central Government and multilateral organizations.

Partner Selection

HOPE has had nine medical university partners in China and worked collaboratively with the Ministry of Health and Provincial Health Authorities. There have been no difficulties in getting the Chinese side to honor both written and verbal agreements. Be it good fortune, good luck or skill, partner section is a critical success factor for an outside entity coming to work in China.

Partner Driven Direction

It is best to support health care initiatives that the Chinese partner wishes to do as long as their economic and other contributions are significant and their approach is well conceived. Such an approach enhances the likelihood of sustainability of initial programs and consequently the value proposition of stakeholders. As success is achieved, opportunities will arise to change directions. There is no shortage of entrepreneurial spirit and boldness in China; it just takes time to find the right opportunities and the right partners. HOPE's first efforts in China emphasized tertiary care solutions consistent with the initial concepts of modernization as seen by China health leaders. As China widened its approach, the scope of its programs too evolved, emphasizing professional nursing education, preventive dentistry, and more recently the increasing burden of chronic disease and the search for solutions beyond hospital settings.

Cultural Sensitivity

Chinese partners have been superb in showing sensitivity to HOPE's "western style" organization and work force. Actions such as providing language training to its staff and fellows, providing workshops on cultural differences, and hiring multilingual staff were implemented. In contrast, HOPE did not offer language training nor a robust orientation to Chinese culture. HOPE did assemble a cadre of staff and experts affiliated with major medical centers, many of whom had prior experience working in other cultures, and all of whom had the aptitude to work in other cultures. For most of the past 35 years, HOPE has had a small number of Mandarin speakers based in China. In recent years, HOPE has been using Chinese citizens as staff members, a number of whom were trained in HOPE programs.

Trust Building

Trust building was a HOPE emphasis from the beginning. HOPE frequently exceeded obligations specified in written agreements. HOPE has been flexible on time deadlines for the Chinese side deliverables as long as they were met and costs were manageable.

A Phased Approach

Initially, HOPE deliberately phased its efforts and committed to a series of pilot programs with modest objectives and geographic scope. As cultural sensitivity and trust building with China partners took place, more complex and more geographically diverse initiatives were pursued.

Lesson 3

> *Steadfast dedication to HOPE's counterpart methodologies as well as "train the trainer," "centers of excellence" and multidisciplinary training strategies enabled China HOPE programs to train many thousands of Chinese health personnel.*

Counterparts

At the heart of external fellowship and China-based training programs was a counterpart relationship between key HOPE and China experts. The HOPE expert had abilities in advanced

health care practices; his/her counterpart had the responsibility of implementing them in China. In a sense, they were mentors to each other on how best to inspire and execute changes necessary for attaining China HOPE partnership goals.

A number of the chapters and sections in this Monograph allude to counterpart relationships. Heart Surgeon Richard Jonas; Nurse Educators Marcia Petrini and Lily Hsu; Pediatricians Frieda Law and Therese Hesketh; as well as Tom Albert, MD and Leon Dogan, DDS, are examples of experts recruited as "counterparts" for China health professionals. They "began as colleagues with their counterparts in China and then became friends."

Training the Trainers at Centers of Excellence

All China HOPE partnership programs had the goal of establishing or strengthening Centers of Excellence. It was understood that China HOPE partnership programs would develop these Centers and that these Centers would in turn extend the benefits to other institutions and areas in China.

Train the Trainer methodologies were utilized in all programs, such as the faculty training programs for the new baccalaureate nursing students. A core of Chinese experts were initially developed through on-site and external fellowship programs. As their knowledge and skills increased, they in turn worked with HOPE experts to train others. As the years passed, HOPE gradually withdrew its expertise, leaving it to China institutions to continue the work started together.

"See others as yourself.
See families as your family.
See towns as your town.
See countries as your country.
See worlds as your world."
(Tao Te Ching)

As the sections and chapters of this Monograph describe, HOPE worked with already established centers of excellence as well as establishing new ones. Examples of the former are partnerships with the Beijing Medical University School of Nursing and the China Nursing Association. New centers of excellence programs included the development of the Shanghai Children's Medical Center and the HOPE School of Nursing at Wuhan.

Dedication to multidisciplinary approaches to health care delivery

Whereas many countries have well-conceived health systems, the United States remains at the forefront in multidisciplinary approaches to health care. As a US-headquartered entity HOPE is positioned to apply this experience to the countries it serves.

Over the course of its 35 years in China, HOPE has championed the "team approach" to health care delivery, helping its partners develop nursing and allied health capabilities in addition to enhancing medical specialties. Thousands of Chinese allied health and nursing personnel have been trained through HOPE programs.

Lesson 4

> *Interactive and multidisciplinary teaching approaches were successful in promoting change.*

Changing from a didactic to an interactive model of transferring information was a challenge, as it meant that our Chinese counterparts had to change their way of thinking from a disease-oriented to a concept-based, problem-solving model. This approach was applied to on-line and distance education methods as well as facilitating clinical practice experiences. Clinical demonstration centers and multidisciplinary teams became the focus for patient assessment, diagnosis and treatment modalities. Building on the Chinese tertiary care services as a resource for education, Project HOPE also promoted primary care to include community and public health services to complete the cycle of care.

Conclusion

We look forward to the next generation of China HOPE Partnership Programs and hope that this Monograph will be a catalyst to new directions or strengthen those already in place.

> *"Life can only be understood backwards, but must be lived forward"*
>
> - Soren Kierkegaard

V. Counterpart Stories

Dr. Zheng Shu: Project HOPE's First Counterpart in China

This personal reflection was written by William B. Walsh, Jr., former President and CEO of Project HOPE, based upon an interview of Dr. Zheng Shu in April of 2018 conducted by Lily Hsu, former HOPE program director in Shanghai.

Dr. Zheng Shu, an oncologist from Zhejiang Medical University, visited HOPE headquarters in 1981. HOPE was one of several stops which included a number of medical centers, made possible by China's new open-door policy toward western countries.

Soon after arriving, Dr. Zheng noticed a picture of China's Minister of Foreign Affairs, Huang Hua – one of several internationally oriented photos, reflecting HOPE's mission of improving health care in developing countries. For Dr. Zheng, it was a sign that HOPE might be interested in China.

Dr. Zheng Shu met many HOPE staff members during her visit. All were impressed and charmed by her direct, friendly and professional manner, including HOPE founder and CEO Dr. William Walsh. She and an accompanying colleague, Dr. Li Shujin of Beijing Medical University, described the history of health care in China. They candidly expressing both strengths and weaknesses – a sign that China medical universities might be good partners for Project HOPE.

Dr. Zheng was impressed that HOPE's health care program with developing countries were conducted through "people to people" relationships rather than through government channels. Her country's open-door policy to the west was in its infancy. She was delighted and surprised when a donation of 75,000 new medical textbook to Zhejiang and Beijing Medical Universities was offered.

Upon returning home, Dr. Zheng quickly arranged for the medical textbooks to be received. ZMU immediately remodeled one of its buildings to house and display the books. ZMU President Dr. Ma Xu invited HOPE to consider a long-term program in China. Dr. Walsh invited Dr. Zheng Shu to be on the HOPE survey team that visited several medical universities in China in 1983. By the end of the visit, she was given an American name: "Sue."

Sue played a key role in HOPE China partnership programs throughout the 1980's. She helped persuade Dr. Hong Wenglan, the head of a small neonatology unit at a ZMU teaching hospital, to expand the unit through a HOPE program.

She organized ZMU health science schools to participate in the development of a modern learning resources center. She especially championed HOPE Biomedical Engineering training programs as

essential to the modernization of health care and the very expensive medical equipment it required. She admired the social medicine orientation of many HOPE staff from Harvard, the University of Virginia, Ohio State, and other universities who saw university based programs as catalysts to improving health care in clinics and hospitals throughout Zhejiang Province.

Because ZMU became HOPE's initial headquarters in China, Sue became a mentor to many HOPE and ZMU staff, advising them on the best ways of working together in China. In a sense, she was a bridge on which Chinese and HOPE colleagues could safely travel as they addressed the cultural and medical challenges inherent in the pursuit of ambitious programs goals.

As HOPE took the early steps toward the development of the Shanghai Children's Medical Center, Dr. Zheng Shu advised SSMU President Dr. Wang Yi Fei to strongly consider locating the project away from the center of the city. Indeed, for HOPE the lessons learned in working with ZMU, BMU, and XMU all contributed to HOPE's decision to develop a children's hospital in Shanghai.

At age 85, Dr. Zheng Shu – Project HOPE's first "counterpart" in China – remains active in clinical practice and teaching.

Dr. Zheng Shu's role as a bridge between China and HOPE team members was especially important when the incident at Tiananmen Square took place. At that time, she happened to be in the United States. She was entrusted with a letter from Dr. Walsh to Shanghai Second Medical University indicating that our joint programs would continue.

I will always treasure my friendship with Sue. I was the HOPE staff member who initially promised the medical textbooks to China and was a frequent visitor to ZMU, monitoring program progress. I hope that one day our paths will cross again.

Dr. Wang Yi Fei: Care for Children's Health, Invest in our Future
Reflections on a Decade's Establishment of the Shanghai Children's Medical Center

By Dr. Wang Yi Fei, Senior Advisor, Shanghai Jiao Tong University School of Medicine and Former President of Shanghai Second Medical University

I entered the field of medicine in 1957. In the last 60 years, I had a lot of experience with Project HOPE. Jointly building the Shanghai Children's Medical Center (SCMC) was an unforgettable experience.

The cooperation between Project HOPE and Shanghai Second Medical University began in 1983. Our cooperation could be divided into three phases. The first phase was the initial contact between the two sides, to understand each other's perspective, objective, and mission. We also strived for future cooperation framework, achieved consensus, and started common actions. In the second phase, the two sides selected three projects as starting points: biomedical engineering, stomatology, and pediatric cardiovascular surgery were main areas for cooperation. Pediatric cardiovascular surgery became the most important foundation for establishing SCMC. The third phase was the establishment of the Shanghai Children's Medical Center. Blueprints of the project started in 1988, the groundbreaking ceremony was in 1992, and official completion in 1998. The project took a full decade to accomplish. I was the President of the Shanghai Second Medical University for these 10 years. That decade was filled with hard work, but we made significant achievements in that period.

When we first started working with the Project HOPE in 1983, we were concerned about how many instruments Project HOPE would donate, how much money they would invest, and the type of training opportunities they could bring. Project HOPE was one of the first non-governmental organizations (NGOs) to enter Mainland China after the country's reform and opening-up to carry out medical exchange and cooperation. I remember that Dr. Walsh, the Chairman of Project HOPE, told me in a private chat that HOPE's mission was to emphasize the provision of quality health services for humanity, especially for the poor, to embrace the belief of "Health Opportunities for People Everywhere." He said that, after Project HOPE was founded in 1958, the ship of HOPE traveled to various countries and saw people in poor countries desperately in need of health care. The organization then decided to focus on helping developing countries to improve the health of their people.

In 1988, both organizations worked together on the blueprint for the future Shanghai Children's Medical Center. Our common vision was to establish a first-rate children's hospital with Chinese characteristics within Shanghai Second Medical University. This common vision embraced two key concepts: international first rate, and Chinese characteristics. Between 1988 and 1991, we had two main tasks. First, we visited several internationally renowned children's hospitals. Merging Chinese characteristics into the visit results, and taking into consideration the situation in China and Shanghai Second Medical University, we formulated the structural framework of the future SCMC. The second task was to persuade all parties concerned, including schools, hospitals, academic

scholars, employees, and relevant government departments, to accept and agree to the idea of building a first-rate international children's hospital with Chinese characteristics.

What does first-rate mean? People may have different opinions, and there is no standard. Thinking back on those years of difficulty, persuading people to reach consensus, these memories are still fresh in my mind. After heart-to-heart sincere discussions, the following consensus was reached: SCMC was to be built as an affiliated hospital of a medical university. Of course, there must be first-rate medical research, first-rate clinical specialties, first-rate medical standards, first-rate experts, and first-rate medical education. The first-rate medical teaching and research teams must be supported by top talent. In addition to first-rate doctors, we must also have first-rate nurses and health technicians. In other words, the hospital must be built with a first-rate pediatric discipline in mind that includes well-structured medical talent for establishing a cohesive team. There is no doubt that this hospital should have first-rate equipment, but this needs to come with a first-rate logistical support system at the same time.

A top-rated hospital needs to have first-rate hospital buildings. Madam Xie Lijuan, Deputy Mayor of Shanghai at that time, repeatedly mentioned the need to build a "Garden Hospital for all Child Patients." Having a first-rate building was not enough; a first-rate humanities environment was also a must. We wanted parents who bring their children to the hospital to experience heartfelt warmth and love for their children. The hospital needed to have a high-standard; also, it must have the soft touch for patients and families. To build such a first-rate hospital, there was no doubt that the hospital would require a first-rate director and a first-rate hospital management team, first-rate rules and regulations, first-rate hospital culture, and strive to establish a first-rate image at home and abroad. At that time, the slogan of the hospital establishment was: ***World-class, Chinese characteristics, based in Shanghai, serving the country, facing the world.*** There was a consensus to work, to build together with Project HOPE, and to create a win-win outcome. Based on this consensus, the Shanghai municipal government included the construction of SCMC as a major project of the Ninth Five-Year plan of Shanghai. In 1991, Shanghai Second Medical University and Project HOPE formally signed the collaboration agreement. The hospital groundbreaking ceremony was conducted in 1992, and the construction of Shanghai Children's Medical Center officially set sail.

If you asked me what the biggest difficulty was in the 10-year preparation process, my answer would be: getting everyone to agree, to reach a consensus. If you asked me what was the key to success in the 10-year preparation process, my answer would be: wisdom from all parties. What was the most important lesson for me in working with Project HOPE during the 10 years of preparation? It was that medical talents would determine the final achievement of the hospital. I remember Dr. Walsh's second visit in 1993. We had a long talk. We both were fully aware that the hospital project had been launched and could not be turned back and could only go forward. We were confronted with a multitude of tasks – and what was the key? We were unanimous that the key was talent. If the hospital had talented specialists, then the hospital would have everything! I remember two statements very clearly from that meeting. The first was "We are partners." We are engaged in a partnership, not a donor and recipient relationship. The second was "Train the Trainer – TOT."

Our next focus was the training of talent. The first step was to train key hospital key staff – the backbone of each discipline – and then let them train other talent, and strive to extend the training benefits to a large group of people. Gradually, the TOT method would form a water ripple cascade

effect. Only by grasping the key to talent could we look forward to the sustainable development of the hospital in the future.

After China's reform and opening-up, Shanghai Second Medical University sent many doctors to foreign countries for training, but we encountered two problems. First, some of the dispatched personnel remained overseas, the return rate was low. Second, after the trained people returned to China, there was lack of team support to execute what they learned from abroad. In order to solve these two problems, we took three measures. The first was that we sent a "team" abroad for training, such as Professor Ding Wenxiang who went abroad with young doctors, nurses, anesthesiologist – the entire team traveling together – and then the whole team came back together to China. They were able to immediately launch their newly acquired skills as a team. Second, we chose an international first-rate hospital as a relatively fixed partner: Boston Children's Hospital in the United States. We sent people there to study, they also sent people to China to guide and to teach. These training plans continued for a few years, and the results were very significant. Third, we addressed the need to develop a long-term training program, or training curriculum. I remember there was a five-year plan. The first-year goal was to improve the quality of conventional surgery; the second-year goal was to improve and innovate surgery technology; the third-year goal was to focus on equipment update; the fourth-year goal was to carry out clinical research; and the fifth-year goal was to accept the mission to have our hospital staff conduct training for other hospital staff.

I believe that, step-by-step, our collaboration with Project HOPE has been a participatory collaboration and cooperation. From the blueprint drawing, to the establishment of the development strategies and staff allocation, the plan was developed jointly by China experts and international consultants. Working together was our main theme. We also paid attention to the outcome and effect of the benefits of the investment to enlarge the "snowball effect." I remember sending about 300 to 400 doctors overseas for training, but SCMC also received 300 to 400 doctors from all over China and the third world for training. This center is a pediatric medical research center, a model for other hospitals, and a talent incubator.

In May 1996, I went to the United States to visit Dr. Walsh, who was not feeling well. I briefed him on the status of SCMC and presented a bouquet of flower on behalf of everyone at the university and the hospital. He said to me, "I am terminally ill, and I may not be able to see the opening ceremony. I hope to hear your celebration drums and firecrackers in heaven." SCMC was his dream. It was also my dream, our common dream. This dream has come true today, and we can comfort Dr. Walsh's soul in heaven.

2018 is the 20th anniversary of the establishment of Shanghai Children's Medical Center and the 40th anniversary of China's reform and opening-up. SCMC had 10 years of difficult planning and 20 years of growth to become today's National Children's Medical Center. Looking back retrospectively and celebrating its achievements, we also must look forward to the future development of the hospital. General Secretary Xi Jinping said: "Without universal health, there is no overall wellbeing." Children's health is the core of our national health; investment in children's health is the future of investment in human society. At this moment in time, we should seriously think about how to achieve the great rise of the China Dream and how to add to the current achievements, how to provide support to achieve the national mission of "Healthy China 2030," and how to take responsibility to build Shanghai into a world-class city of excellence. To fulfill these goals, there is still a long way to go. But the Shanghai Children's Medical Center, in this new era, will open and write a magnificent new chapter!

关爱儿童健康， 投资人类未来 ------ 回顾上海儿童医学中心筹建之路

Care for Children’s Health, Invest in our Future
Reflect on 10-years’ establishment of Shanghai Children’s Medical Center

王一飞 （上海交通大学医
院顾问）

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VI. Epilogue: Where Do WE Go From Here?

China has made extraordinary progress as a nation during its 35-year partnership with Project HOPE in bringing better health care to its enormous population. From 1985 to 2011, life expectancy increased from 66 to 75 years of age, while under-five child mortality decreased from 61 to 15 deaths per 1000 live births. Within its 5,000-year history as a civilization, these past 35 years have witnessed unprecedented and rapid economic and social development, which have contributed to numerous advances in the health system and accompanying gains in health status.

To be successful, the future of Project HOPE in China should build upon the elements that have made the partnership successful for the past 35 years, while taking into account current realities, possibilities, and needs. It strikes me in reading this monograph that Project HOPE has been a good listener and has fostered a working relationship founded in trust and respect. This is fundamental to our "people-to-people" approach at Project HOPE towards service and development. We always work in a country to help realize the vision of our counterparts, not to impose our own vision. To quote one Chinese collaborator who recently wrote to me, "For Project HOPE, I had lots of personal feeling. Actually, I got lots of support from Project HOPE in my early career life. Not only me, lots of pediatricians and nurses have the same feeling as mine. So that's why we all say Project HOPE is part of our family."

Project HOPE's mission is to provide support to health workers to better care for the population they serve. What countries want most from partnership, I have learned, is to build their own capacity to deliver quality health care and public health programs. Supporting China to develop its workforce has been the major theme of our partnership, with the Shanghai Children's Medical Center and Wuhan HOPE School of Nursing serving as great examples. But the pendulum for donors over the past 15 years has swung in favor of disease-specific programs that produce short-term results. Those programs are important for reducing morbidity and mortality from major killers, but they may not leave behind strengthening of the health system that endures. The shortage of health workers poses the greatest threat to achieving Universal Health Coverage by 2035, now a global commitment under the Sustainable Development Goals. Disease-specific initiatives do little to address the shortage of health workers. Hopefully, the pendulum will swing back towards the middle.

At least three themes emerge for the continued partnership between China and Project HOPE:

1. Continuation of current activities in nursing education, pediatric medicine, and non-communicable diseases
2. Expanding support to other needy areas such as Western China
3. Supporting China to increase its role as a development partner, such as building the capacity of new children's hospitals and nursing education programs

Time will tell, but on behalf of the team at Project HOPE, I wish to express our deepest commitment to our enduring partnership with China.

Tom Kenyon, MD MPH
CEO and Chief Medical Officer
Project HOPE

APPENDICIES

Acknowledgements

The purpose of this section is to acknowledge the efforts of those who contributed to the writing of this Monograph, as well as those who supported and participated in HOPE's China programs over the past 35 years.

The organization, research, and writing of this Monograph took place over a two-year period. It was a voluntary undertaking by many who participated in the China HOPE programs who thought its documentation would be instructive to institutions and people engaged in transnational collaboration in health care in the years ahead.

Cary Kimble was the first one recruited to the writing team just before he retired from Project HOPE, where he was Associate Vice President of Development. He wrote a number of sections and served as editor in chief, stitching the various elements of the Monograph together. Tina Larrick, retired IT Director at Project HOPE, worked closely with Cary developing and refining the format and look of the Monograph and managing the input of text, photos, and features.

Carolyn Kruger PHD, former Director of Nursing at Project HOPE, was next to join the team. She wrote the extensive nursing history and performed a myriad of tasks, helping to research the HOPE archives of 35 years of reports and photos and lending her academic expertise to the writing style of the Monograph. Dawn Smith, Administrative Assistant; and Mandy Luety, Director of Human Resources and Administration; were very helpful in compiling the list of China staff and volunteers.

Without the efforts of Lily Hsu, a nurse educator for HOPE programs in China and now the Regional Technical and Development Advisor of Project HOPE China, the Monograph would not have been completed. She and her colleagues – including Qian Geng, Senor Regional Director for China and Japan; Min Hu, Director for Diabetes Education Programs; Yang Liu, Program Manager; Tom Feng, Chief Representative of Beijing office; Tracy Huang, Program Manager; Jenny Xu, Chief Representative of Shanghai office; Gu Shuping, Senior Shanghai Office Administrator; Guoli Wu, Program Manager; ShanShan Tang, Senior Program Officer; Yingying Huang and Yunjie Ding, Program Coordinators; Min Hu, Senior Program Assistant and Linda Dong, Senior Program Manager of Wuhan office and Daisy Feng, Senior Program Officer – contributed to the content of several sections. Lily discussed the Monograph content with numerous Chinese colleagues and counterparts, assuring that their perspective was included throughout the Monograph.

Thanks are especially due to our guest authors, Richard Jonas, Tom Albert, Ralph Allen, Therese Hesketh, Arthur Kaufman and Frieda Law. They did a great job describing the various China programs which they led, as well as their personal recollections.

I am grateful to the Huang family, particularly Sheila Li, for bringing about the use of Dr. C.J. Huang's calligraphy to illustrate the Monograph. In a sense, his art reflected in the brush strokes meaning "hope is the true heart" convey that people – not just the injection of new technologies and financial resources – were the foundation of program success.

The Project HOPE Alumni Association and Project HOPE gave their blessing to the Monograph's development. A number of members of the Alumni Board of Directors contributed to research efforts.

Current HOPE CEO and Chief Medical Officer Tom Kenyon, MD authored one of the sections and has arranged for the initial Monograph to be distributed at the 35-year celebration of HOPE's work in China on June 1-2, 2018. Tom is also a HOPE alumni member. He worked for several years in HOPE Africa and Caribbean programs early in his career.

The United States Embassy in China and the People's Republic Embassy of China in the United States is also to be acknowledged for their counsel and their belief that the China HOPE programs have symbolized a friendship between the people of the United States and China.

For me, the last two years spent in helping to organize, research, and write this Monograph has been a trip down "memory lane." It has been wonderful reconnecting with people who traveled the China HOPE program road together, as well as remembering the efforts of those now deceased. It has been emotional at times reviewing documents, hearing stories, and recalling that the Walsh family all played a part in the China programs starting in 1983.

"Memory Lane" is mythical, a path that only exists in one's mind. Nevertheless, those reading this Monograph can better understand that the China HOPE program road has been very real. We, the authors and contributors, hope that it will be useful and even inspirational to others involved in transnational collaboration in health care.

William B. Walsh
Former President and CEO
Project HOPE

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Thomas Albert, MD is a Professor of Oral and Maxillofacial Surgery and Professor of Otolaryngology, Head and Neck Surgery at Oregon Health and Science University. He is President and Co-founder of the FACES Foundation. He was the Project HOPE Co-Director of Stomatology Program in China over several years beginning in 1983.

Ralph Allen
Ralph Allen is currently a Partner at Evolution Architecture in the Seattle area and has 35 years of experience in the field. He was a Senior Associate with the firm Naramore Bain, Brady and Johanson (NBBJ) in the 1980s and 1990s, where he provided architectural oversight for a number of major health care projects in the US and abroad including the expansion of core services at Seattle Children's Hospital and the design of the Shanghai Children's Medical Center. In 2000, he founded the firm Grace Architects.

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Therese Hesketh is currently Professor of Global Health, University College London and Director of Center for Global Health, Zhejiang University. She is a consultant at Public Health England. She is qualified in pediatrics and public health and has an MPH and a PhD. While at Project Hope in China, Dr. Hesketh was a Pediatric Educator and then head of the China Maternal and Child Health Outreach Program.

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Richard A. Jonas, MD, currently serves as Chief of Cardiovascular Surgery and Co-Director of Children's National Heart Institute, Children's National Medical Center, Washington, DC. Dr. Jonas is world-renowned for his contributions to the field of pediatric cardiovascular surgery. During the planning and preparations for the Shanghai Children's Medical Center, when he was Cardiovascular Surgeon-in-Chief at Children's Hospital in Boston, Dr. Jonas and his team made countless training visits to China in support of HOPE's medical training program, resulting in SCMC being recognized as a world-class center for the treatment of children requiring cardiovascular surgeries.

Arthur Kaufman
Arthur Kaufman, MD is Distinguished Professor of Family and Community Medicine and Vice Chancellor for Community Health at the University of New Mexico. He is also Director of the University's WHO Collaborating Center. He is internationally renowned as a leader in innovations in medical education and clinical service to address priority health needs of rural and marginalized populations. During his role as Project HOPE's Director of Rural Medical Education in China, his team worked with two rural medical schools in southern Shaanxi Province in collaboration with Xi'an Medical University, one in Ankang and the other in Hanzhong. The curriculums were designed to address priority health and social needs of rural China and the outcome was over 700 medical graduates, the great majority of whom practice in rural districts of the Province.

Tom Kenyon
Tom Kenyon, MD, MPH, is Project HOPE's current CEO and Chief Medical Officer. He leads HOPE's overall strategic direction in 22 countries, including China. Prior to returning to Project HOPE, he served as Director, Center for Global Health, at the US CDC. He also served in the State Department as

Principal Deputy Global AIDS Coordinator and Chief Medical Officer for the President's Emergency Plan for AIDS Relief. He spent 15 years in Africa as a CDC Country Director in Botswana, Namibia, and Ethiopia, and 7 years in Grenada and Swaziland with Project HOPE as a pediatrician educator and Country Director.

Cary Kimble

Cary Kimble retired in 2015 as Project HOPE's Associate Vice President for Development. He served previously as HOPE's Acting Vice President of Development, Director of Development, and Director of Corporate and Foundation Support. During his 25 years at HOPE, he raised funds, primarily from corporate and foundation donors to support the Shanghai Children's Medical Center, as well as other HOPE initiatives. He is a member of the Project HOPE Alumni Association Board of Directors.

Carolyn Kruger

Carolyn C. (Brye) Kruger BSN, MA, MS. PhD is currently a Consultant and Volunteer to Project HOPE on Reproductive, Maternal, Newborn, and Child Health focusing on building the capacity of HOPE's countries on newborn special care. She is a member of the Project HOPE Alumni Board of Directors. She was a past Project HOPE Director of Nursing, International Programs and Coordinator of Nursing Education Programs China- 1987-1995. She managed the quality of program development in the early stages of the teacher preparation and Bachelor of Science programs in Xian, Beijing and expansion to other universities.

Frieda Law

Freida Law MDBS FRACP, Executive Director (Medical) of the Li Ka Shing Shantou University Foundation, is the consultant of Shantou University Medical College in Guangdong, China. She received her degrees from the University of Melbourne and her clinical training at the Royal Children's Hospital, Melbourne, Australia. She is a Fellow of the Royal Australian College of Physicians (Pediatrics) who has worked in Australia, Switzerland, Sri Lanke, and has been in mainland China for the past 22 years. From 1996 to the end of 2001, she was engaged by Project HOPE to spend full-time in Shanghai providing clinical training to pediatricians. She also helped facilitate the construction and initial operation of the Shanghai Children's Medical Center.

Joseph Schmitt

Joseph Schmitt, PhD, is a member of the Health Technology team at Apple in Cupertino, CA. Previously he served as VP of Advanced Development at St. Jude Medical and Chief Technology Officer of Lightlab Imaging, a start-up company that pioneered high-resolution techniques for intra-coronary imaging. Early in his career, he served as coordinator of Project HOPE's biomedical engineering program in Hangzhou, China, and later worked at the U.S. National Institutes of Health as a Senior Staff Fellow and as Associate Professor at the Hong Kong University of Science and Technology. Dr. Schmitt received the BS degree in biomedical engineering from Case Western Reserve University and the MS and PhD degrees in electrical engineering from Stanford, CA.

William B. Walsh, Jr.

William B. Walsh, Jr., is President Emeritus of Project HOPE. Mr. Walsh succeeded Project HOPE's founder, William B. Walsh Sr., as President of Project HOPE in 1991 and as CEO in 1992. During his nine year tenure, he expanded the scope and mission of HOPE international programs. HOPE team achievements included the creation of the Central Europe Health Care Management program, the development of the Shanghai Children's Medical Center and a national diabetes education program in China; education programs addressing drug resistance issues in tuberculosis treatment in Central Asia; sustainable primary health care /social determinants of health models in southern Africa and Latin

America, and the organization of sister Project HOPE foundations in Europe and Asia. He was HOPE's regional director for China from 1983 to1987. He is a member of the Project HOPE Alumni Association Board of Directors. He developed the Alumni team authoring the previously published Monograph on the history of HOPE health care management program in Central Europe. He was similarly appointed to develop a team to write this Monograph. Other career highlights include tenures as an Asia Area Business Development Vice President for a software company, Deputy Director for a State health insurance authority, and Private Sector Partnership Director for a Presidential initiatives in child literacy for Latin America and the Caribbean during the George W. Bush administration.

Wang Yi Fei

Dr. Wang currently as Professor and Senior Advisor to the Shanghai Jiao Tong University School of Medicine. He is also Vice Chairman of Shanghai Senior Professor Association, Honorary President of Chinese Society of Reproductive Medicine, Chairman of Shanghai Society of Family Planning and Reproductive Health, Editor-in-Chief of International Journal of Reproductive Health and Family Planning and Editor-in-Chief of Asian Journal of Andrology. During 1988-1997, when the Shanghai Children's Medical Center was being developed, he was the President of Shanghai Second Medical University. During 1995-2001, he was appointed as Medical Officer, Department of Reproductive Health and Research, World Health Organization, Geneva, Switzerland, serving as the Area Manager for Asia and the Pacific, as well as the coordinator of 60 Global WHO Research and Training Collaborating Centers for Reproductive Health.

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This monograph has endeavored to list everyone who participated in the China Programs – but it is an illustrative list. The readers of the Monograph are encouraged to add other names for subsequent editions. Please send updates and corrections to Sharon Redding, President of the Project HOPE Alumni Association, at sredding@projecthope.org.

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Professor Chin	President	Beijing Medical University

Project HOPE China Counterparts (continued…)

Professor Li Xue-Yu	Chief Librarian	Beijing Medical University
Professor Lui	Deputy Director, National Institute of Science and Technology	Beijing Medical University
Xun Zou MD	Professor of Nursing	Beijing Medical University
Chen Bao Zhang	M.D. Pediatrics	Beijing Nursing School
Dr. Wang Cheng	Director of Friendship Hospital, Beijing	Beijing Sino-Japan Friendship Hospital
Hong Wenlan	Director of Children's Hospital	BOPH & ZMU
Zheng Kai Hang	Director of MCH Division of the Bureau of Public Health	BOPH & ZMU
Dr. Hu Shang Yi	Vice Chief	Bureau of Higher Education
Yan Weiran	Nursing Director	Bureau of Medical Affairs
Dr. Li Shi Chuo	Former President of CAAE	China Association of Anti-Epilepsy, CAAE
Dr. Qiao YouLin	Executive Secretary, China Cancer Foundation	China Cancer Foundation
Lin Ju Jin	President	China Nurses Association
Dr. Wa Chu Ta	Director	First Central Hospital Tianjin Medical
Dr. Wang Chin Ta	Director, Critical Care Unit	First Central Hospital Tienjin
Mme. Sheh Yen Chu		First Central Hospital, Tienjin
Dr. Chen, Rong Chang	Director of Respiratory Medicine Research Institute	Guangzhou Medical College Affiliated Hospital
Dr. Liu Dongru	Former Director of Disease Control	Hubei Bureau of Health
Dr. Zhan Faxian	Dean	Hubei Provincial Center of Diseases Control
Professor Lin Tung Liang	Vice President	Jiao Tong University
Hu Shang Yi MD	Vice Chief of Higher Education Bureau	Ministry of Health
Yan Weiran	Nursing Director, Bureau of Medical Affairs	Ministry of Health
Yin Wei Fong	Assistant Director of Nursing	Number One Hospital
Dr. Din Wen Xiang	Cardiac Surgeon	Pediatric Hospital in Hangzhou
Dr. Liu	Cardiologist	Pediatric Hospital in Hangzhou
Dr. Wang	Medical Director	Peking University Medical College
Yang-Zhen-Min	Assistant Professor, Department of Anesthesiology	Scholar, Intensive Care Unit, University of Pittsburgh
Dr. Li Shu-Jun	HOPE, Liaison	Scholar, University of Pittsburgh
Dr. Zhang Jing-Fan	Anesthesiologist	Scholar, University of Pittsburgh
Chen Sha Bao	President	Shanghai Children's Medical Center
Dr. Wang Jiwen	Department Chief Shanghai Children's Medical Center	Shanghai Children's Medical Center
Madame Lin	Engineer	Shanghai Children's Medical Center
Madame Zhou	Engineer	Shanghai Children's Medical Center
Wang Yu	Architect	Shanghai Children's Medical Center
Mr. Zhang Ying-Bai	Secretary, Foreign Affairs	Shanghai Second Medical University
Dr. Yu	Minister of Education	Shanghai Municipality
Dr. Qiu Xiang-Xin	VP of the Teaching Department	Shanghai Second Medical University
Mr. Zhang Ying-Bai	Secretary, Foreign Affairs	Shanghai Second Medical University
Professor Jin Zhen-Juen	Chief, Department of Biophysics and Pharmacology	Shanghai Second Medical University
Professor Lan Xi-c'un	President	Shanghai Second Medical University
Wang Yi Fei	President	Shanghai Second Medical University
Feng Yang	Clinical Instructor	Shanxi Medical College, College of Nursing
Dr. Qing Jiong	Chief of Pediatric Neurology Committee	Society of Pediatric, China Medical Association
Dr. Yu Song Ting		Tienjin Medical College First Teaching Hospital
Li Xue-Zheng	Registered Nurse	Vice Editor, Chinese Journal of Nursing
Professor Feng Youmie	VP	Wuhan University
Professor Gu Hailiang	Secretary	Wuhan University
Professor Hou Jiechang	President	Wuhan University
Professor Li Xiaohong	President	Wuhan University
Professor Liu Jingnan	President	Wuhan University
Dr. Shen Ruinian	Secretary	Wuhan University
Professor Cheng Xuemeng	Director	Wuhan University International Office
Professor Lu Jiangbing	Former Director	Wuhan University International Office
Professor Peng Yuanjie	Former Director	Wuhan University International Office

Project HOPE China Counterparts (continued…)

Dr. Fan Mingwen	Former Dean	Wuhan University School of Medicine
Dr. Yang Jiong	Former Vice-Dean	Wuhan University School of Medicine
Dr. Zhou Yunfeng	Former Dean	Wuhan University School of Medicine
Dr. Du Mingquan	Professor	Wuhan University School of Stomotology
Professor Jiag Dajong	Vice President, Director Biomedical Electronics Section	Xian Jiao Tong University
Professor Shou	Linguistics	Xian Jiao Tong University
Dean Shao	Vice Dean	Xian Medical College
Huang Yan Ping	Physician	Xian Medical College
Mao Li Jing	Physician	Xian Medical College
Zhou Que Di	Nursing Administrator	Xian Medical College
Shao Wei Wei	Director	Xian Medical College, School of Nursing
Dr. Shi	Vice President	Xian Medical University
Dr. Tsas	Vice President	Xian Medical University
Lin Qi	Physician Rural Medicine	Xian Medical University
Ma Li	Diabetes Educator	Xian Medical University
Professor Jiag Dajong	Vice President, Director, Biomedical Electronics Section	Xian Medical University
Professor Shou	Linguistics	Xian Medical University
Ren Huimin	President	Xian Medical University
Din Wen-Xiang	Chief, Department of Pediatric Cardiovascular Surgery	Xin Hua Hospital
Dr. Din Wen-Xiang	Pediatric Cardiologist	Xin Hua Hospital
Dr. Liu	Pediatric Cardiologist	Xin Hua Hospital
Dr. Ying	Pathologist	Xin Hua Hospital
Dr.Ying	Pathologist	Xin Hua Hospital
Mrs. Wu	Nursing Director	Xin Hua Hospital
Ms. Li Jin Fend	Director of Nursing	Xin Hua Hospital
Professor Liu	Cardiologist	Xin Hua Hospital
Professor Qi	Superintendent	Xin Hua Hospital
Shen Ju Fen	Chief Nurse, Pediatrics	Xin Hua Hospital
Sun Xiao Ling	Assistant Director of Nursing	Xin Hua Hospital
Dr. Tsu	Surgeon	Xin Hua Hospital
Dr. Wang Xiao Ming	Intensivist	Xin Hua Hospital
Mr. Yan Hong Bing	Director of Nursing	Xin Hua Hospital
Mrs. Dai	Charge Nurse	Xin Hua Hospital
Mrs. Wang Jia Feng	Head Nurse	Xin Hua Hospital
Associate Professor Dia	Vice President	Zhejiang Medical University
Associate Professor Jin	Vice President	Zhejiang Medical University
Dr. Hu	Pediatric Thoracic Surgeon	Zhejiang Medical University
Dr. Hung	Vice Administrator Pediatrician	Zhejiang Medical University
Dr. Peng	Chairman, Surgeon	Zhejiang Medical University
Dr. Wang Ji-Wu	President	Zhejiang Medical University
Dr. Ye Ding-Sheng	Thoracic Surgeon	Zhejiang Medical University
Dr. Zheng Shu	Oncologist	Zhejiang Medical University
Ms. Zhang Yi Jin	Nursing Department	Zhejiang Medical University
Ms. Zhang Yi Jin	Teacher	Zhejiang Medical University
Professor Li	Vice President	Zhejiang Medical University
Wang Ji Wo	President	Zhejiang Medical University
Wang Tien	Director Department of Nursing	Zhejiang Medical University
Zhao Bing Wa	Chief Department of Nursing	Zhejiang Medical University
Zheng Shu	Oncologist	Zhejiang Medical University
Zhu Wei Xing	MCH Coordinator	

Project HOPE U.S. University and Hospital Affiliations

Following is an illustrative list of health science centers associated with HOPE China programs.

Akron City Hospital
Albert Einstein Medical Center
American University Health Science
Boston Children's Hospital
Canton Ohio Aultman Hospital
Case Western Reserve University School of Nursing
Children's Hospital of Philadelphia
George Washington University, Children's Medical Center
Harvard School of Dental Medicine
Hospital Corporation of America (Saudi Arabia)
Indiana University Health Sciences
Massachusetts General Hospital
Memorial Medical Center Jacksonville, Florida
Michigan State University
Montefiore Medical Center
National Children's Medical Center (Washington DC)
North Central Bronx Hospital
Ohio State University School of Biomedical Engineering
Oregon Health and Sciences University
Pennsylvania State University
Purdue University Health Sciences
San Francisco State University
Schneider Children's Medical Center (Tel Aviv)
Seattle Children's Hospital
Southern California Permante Medical Group
St. Jude's Medical Research Center
University of Alabama School of Allied Health
University of Arizona Health Sciences
University of California Health Sciences, Los Angeles
University of Chicago School of Medicine
University of Cincinnati Children's Hospital
University of Connecticut Health Sciences
University of Miami Health Sciences
University of New Mexico School of Medicine
University of North Carolina School of Nursing
University of Texas Health Sciences
University of Virginia School of Medicine
University of Wisconsin Children's Hospital
Veterans Administration Hospital
Walter Reed Army Medical Center

HOPE Impact Maps

Project HOPE Partners in Medical and Nursing Education
Since 1983

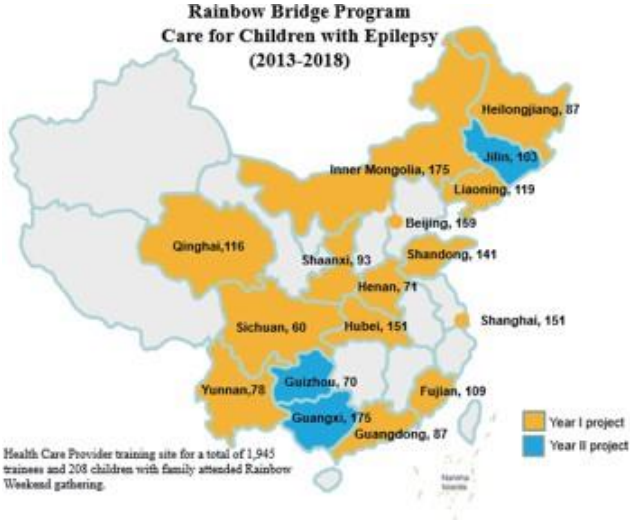
Project HOPE Pediatrician Training for
China Rural Regions

- From 2002 to 2017, **386** fellows from various provinces trained at SCMC for one year. Oncology specialty is one of the key areas for fellows to practice.

>40
31-40
21-30
10-20
<10

Rainbow Bridge Program
Care for Children with Epilepsy
(2013-2018)

Rainbow Bridge Program
Care for Children with Epilepsy
(2013-2018)



Health Care Provider training site for a total of 1,945 trainees and 208 children with family attended Rainbow Weekend gathering.

China Alliance for Respiratory Disease (CARD) Program (2015-2017)

- Lung function training at 29 provinces, more than 60 regions
- More than 17,000 health service providers participated
- About 7000 received certificates

(CARD) Program (2015-2017)

- Chronic respiratory diseases training conducted for 20 provinces, 43 cities
- Total of 44 national respiratory workshops and 38 pediatric asthma training programs
- Reached a total of 9,685 trainees

Project HOPE Diabetes Programs in China Evolving Programs to Meet Emerging Needs (1996-2018)

China Alliance for Respiratory Disease (CARD) Program (2015-2017)

★ Nebulizer distribution in each province for community health service through local partners

HPV Infection Prevention Education Program (2013-2018)

Location: 7 regions, 17 cities ★

- 2,399 health care providers trained
- 2,700 adolescents trained
- 1,541 parents trained
- 1,107 school health teachers trained
- 200 journalists trained
- 5,000 people in public education

Additional Photos

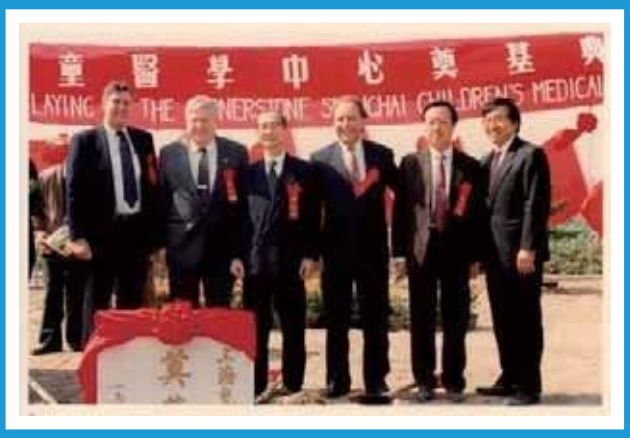
A final trip down memory lane

Photos of the Community Medicine Program, Xian, 1986

The Tai Bai Village Clinic Pharmacy.

Dr. Liu Youquan, head of the CME Program at Hanzhong.

For years, Project HOPE conducted a program, under the direction of volunteer Dr. Leon Dogon, that provided preventive dental care for school children and trained oral health providers.



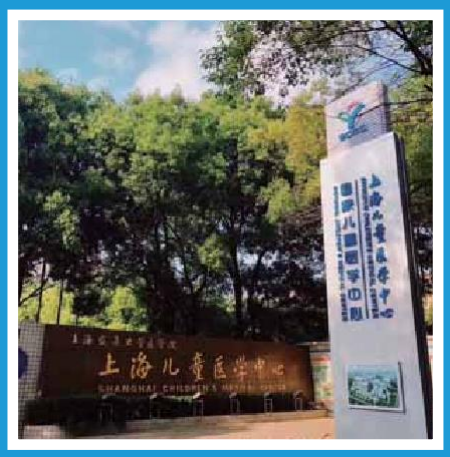
October 1992: HOPE representatives William Walsh Jr. and Dr. William Walsh pose at the SCMC Ground-breaking Ceremony with Dr. Chen Mingzhan, Minister of Health; Goran Malm, President of GE Asia Pacific; Dr. Wang Yi Fei, President of SSMU; and Mr. Wang Yu, an architecture representative of the hospital construction design firm.

In 1998, Project HOPE initiated the first DM education and training program in China.

The Genzyme Corporate sponsored a long-term HOPE program to train health professionals in caring for patients with Gaucher Disease.

In 1998, the opening of the Shanghai Children's Medical Center in Pudong District of Shanghai, provided a modern pediatric care for children and started a 20- years voyage in advancing pediatric care in China by Project HOPE.

Proejct HOPE team for SCMC grand opening 1998



In 2017 Shanghai Children's Medical Center added another important role- the National Children's Medical Center-Shanghai to lead, safeguard and advancing children's health issues.

Since 1998, the McDonald's Corporation provided funding to furnish a waiting room/play area in the Shanghai Children's Medical Center. The room has been well utilized for children's playing, patients education, parents gathering, and staff training

In September, 2001, Project HOPE with SCMC organized the First Pediatric Nursing International Conference in Shanghai, honorary guests and renown nursing leader Madam Lin Juying, Dr. Lesile Mancoso, Project HOPE Nurse Educators Ms. Maggie Chen and LinTi Zhang and long term nursing consultant Dr. Marcia Petrini with international and domestic nursing leaders for this significant event in pediatric nursing.

In 2006, Project HOPE undertook a program in Hubei Province, funded by several corporate and foundation donors, to strengthen BS nursing education and to train rural physicians in Hubei Province in providing care and treatment for HIV/AIDS patients.

In 2007, Project HOPE with Abbott Foundation launched "SCMC-Project HOPE-Abbott Fund Institute of Nutrition Science" at SCMC to address nutrition support practice for children with critical illness.

In 2008, Abbott partnered with Project HOPE on an educational initiative responding to the infant formula crisis in China – an adjunct to the Abbott-sponsored child nutrition program in Shanghai.

In 2008, Project HOPE engaged many partners to respond to the devastating earthquake occurred in Sichuan province WenChuan area. Rehabilitation medicine capacity building program was launched after the earthquake.

In 2009, Project HOPE started the Pediatric Palliative Care program to address unmet gaps in cancer care supported by Virgin Atlantic Airline

In 2010, Project HOPE with SCMC, Shanghai Jiao Tong University School of Medicine, US Hospira Foundation, USAID, and St. Jude Children's Research Hospital conducted the ground-breaking for the SCMC Hematology Oncology Center

In 2012, Project HOPE with SCMC launched Patients' Safety Program at SCMC funded by Covidien Foundation, US. The program emphasized the importance of increasing public and health care awareness to enhance safety practice. The slogan of the program "patients' safety-you and I safeguard together" was widely accepted by public and health care providers.

In 2013, Rainbow Bridge-Care for Children and Family with Epilepsy started and the Rainbow Bridge Education Weekend provided cheerful and colorful gathering for needed family in Shanghai, 2014

Cervical Cancer prevention by addressing the HPV infection prevention was initiated in 2014 to cover 7 regions of China. Public, health care providers, school teachers, and adolescents were reached for primary prevention of HPV infection. Digital HPV knowledge survey and focused group training, peer education were conducted in project.

In 2014, Project HOPE started a 5-years chronic respiratory disease management program (China Alliance for Respiratory Diseases, CARD) supported by AstraZeneca to address low awareness in chronic obstructive lung diseases, asthma community management, and lung function test. Program launched in 2015.

In 2015, Project HOPE provided Lung function test for university staff in Beijing, many of participated staff were on their first time for lung function screening.

Since 2014, the pediatric asthma in Shanghai has facilitated the development of pediatric asthma clinic in Pudong community, 14 community health centers started the pediatric asthma care for children younger than 14 years old. Lung function test and nebulizer therapy are available at the community health centers of Pudong District, Shanghai.

In 2016, Project HOPE work with Bard Foundation started the intravenous therapy access patients' safety project to less developed areas of China to initiate the central line Intravenous therapy training.

In 2017, Project HOPE continue its passage to enhance the pediatric palliative care and conducted the nursing training by adapting the curriculum from American Association of College Nursing End-of-life nursing curriculum.

In 2018, Project HOPE with BD Global Health Division initiated an extended Intravenous Therapy patients safety project to provide nursing training in Qinghai, Yunnan, Sichuan, and Hubei Province to strengthen the standard practice in IV therapy.

In April 2018, SCMC pediatric cardiovascular team led by Dr. Ding Wenxiang, a renewed cardiovascular surgeon shown respect at Dr. William Walsh, Project HOPE Founder statue.

PROJECT HOPE