
Lessons Learned: Healthcare PPP Case Studies and Forums in Asia

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Executive Summary

Public-private partnerships (PPPs) are increasingly hailed internationally as innovative solutions to healthcare challenges. This is especially true in Asia, where a growing incidence of non-communicable diseases (NCDs) among the elderly is beginning to strain healthcare systems in diverse countries, including China and Singapore.

From January 2017 to May 2018, Professor Alan M. Trager and a senior research team from the PPP Initiative Ltd (PPPI) researched and wrote the first substantial set of healthcare PPP case studies relevant to Asia, organized and executed four forum events, and conducted PPP skills and capacity-building workshops. The forums, hosted at Tsinghua University in Beijing and the National University of Singapore (NUS), convened academics and leaders from across the public sector, private industry and civil society.

Principals and featured speakers thought that the cases and forums brought serious attention to healthcare PPPs, building legitimacy and acceptance of their use. Remaining concerns include the relative lack of expertise in both the public and private sectors to navigate the complex decision-making processes that characterize PPPs. Through skills-building workshops, PPPI is making it possible for all partners to optimize their values and resources, and manage risk.

The Spring 2018 forums and the two final cases focused on how the exponential growth of NCDs has created unsustainable budgetary and treatment burdens for eldercare. This supply-demand imbalance is perhaps the greatest challenge to healthcare systems in Asia; healthcare models must trend towards integrated systems that combine prevention with treatment.

Notably, PPPI started its collaboration with two schools of public policy in Beijing and Singapore. But after the November 2017 forums, those institutions—recognizing the scope of PPP work—requested the addition of schools of public health. The public health schools agreed to co-sponsor the April/May 2018 forums in order to expand academic expertise in PPP and healthcare. Further, the public health schools signed a Memorandum of Understanding for joint research.

Emerging from a period of intense research, international collaboration and teaching, PPPI has distilled its focus to three major themes: the convergence of NCDs and eldercare; the importance of PPP capacity-building; and the value of a flexible model for PPP structures. All three recognize the crucial role played by country context, suggesting that the use of evidence-based case studies has never been more important to PPP training.

Lastly, the timing of PPPI's work coincides with international efforts led by such groups as the WHO Independent High-level Commission on NCDs—which has highlighted the value of PPPs in addressing the impact of NCDs on eldercare—and the UN High-level Meeting on NCDs. Their gatherings highlighted the current and prospective uses of public-private partnerships.

Section I: Case Development Program

Introduction

Over the course of 15 months, PPPI researched and published six authoritative case studies on healthcare issues relevant to Asia that together form the first comprehensive set of healthcare PPP teaching materials. In addition, PPPI hosted four forums in Beijing and Singapore in November 2017 and April/May 2018.

The Case Development Program, managed by the PPP Initiative Ltd, grew out of Professor Trager's work at the Harvard Kennedy School (HKS) and Johns Hopkins School for Advanced International Studies (SAIS). Trager also served as Principal Investigator for an 18-month research project, "Mapping Public-Private Partnerships across Countries (China and India)"—a comparative study of China and India's respective needs and abilities to carry out successful public-private partnerships. He and senior researchers interviewed more than 160 people during nine trips to the two countries. One of the key findings was the Execution Gap—a lack of readiness by the public sector to partner with the private sector in healthcare PPPs.

PPPI's international research team (drawn from Harvard University, Johns Hopkins University, Tsinghua University and National University of Singapore) supported the Case Development Program with field and desk research. PPPI also used the services of a professional case writer to ensure case studies met international quality standards.

Case topics spanned three countries—China, Singapore, and the United States. An American example was selected because it provided insights and parallels to healthcare issues facing policymakers in Asia.

Importance of Case Studies

For 15 years, Professor Trager has used the Case Method to teach graduate courses and executive education programs at leading universities in many countries. Case studies describe real people dealing with real professional dilemmas, giving classroom participants a realistic understanding of the roles, responsibilities and analytical skills required of decision makers, as well as the tensions that may arise among stakeholders with different objectives. Case discussions highlight the political challenges and analytical tasks that government officials face as they formulate PPP policies and programs designed to attract private sector expertise and financial resources for public sector projects. Case class participants are asked to assume the role of the principal analyst or decision maker and are expected to analyze the problem, identify and assess options for action, and defend a decision on what to do next.

The Case Method promotes active learning. Rather than listen to lectures (i.e. passive learning), participants are expected to actively engage in a structured class discussion of the case led by an instructor. Because classroom case studies seek to recreate actual professional dilemmas, participants

develop the skills necessary to analyze the kind of issues encountered in daily work, all in the safety of a classroom.

Each of the six cases features the impact and challenges of applying advanced PPP skills and frameworks to healthcare. The US case (Steward) was written as an example of how large cities cope with deteriorating healthcare facilities. The protagonist in each case experiences economic/political opportunities and risks: converting public liabilities to more valuable assets, internalizing positive externalities, and combining prevention and treatment. The cases address a variety of factors affecting health care, from technology and human resources to finance, facilities and real estate. The Case Development Program also emphasized a perspective not well represented in the existing PPP case literature—that of the private and civil society sectors.

Case Study Summaries

Do the Elderly Have to Be Ailing? Singapore's Health Promotion Board

In the early 21st century, Singapore was trying to cope with expected explosive growth in the number of citizens over 65—from 11 percent of the population in 2011 to 19 percent by 2030. Existing services were inadequate even for current seniors. In 2001, Singapore's Ministry of Health had established the Health Promotion Board (HPB) to encourage healthy living and prevent disease. While HPB served Singaporeans of all ages, its prevention efforts had the potential to dramatically reduce the social, economic and healthcare costs of chronic diseases like diabetes—especially among the elderly. It hoped to convert seniors from burdens on society to contributors.

HPB CEO Zee Yoong Kang aimed to create public-private partnerships (PPPs) among government, companies and nonprofits to promote public health. But he grew frustrated by what he perceived as engrained bureaucratic suspicion of the private sector. Zee needed to establish a new mindset at HPB, but what strategy would bring about a comprehensive culture change?

National Kidney Foundation: Charity juggernaut or semi-public agency?

The National Kidney Foundation of Singapore (NKFS) in 2004 was the country's best-known and best-funded charity. Besides offering free or highly subsidized care for low-income patients at 21 dialysis centers, NKFS funded screening and prevention programs.

But in July 2005, NKFS CEO T.T. Durai went on trial for fraud, insider dealing, and other crimes. Donors canceled gifts and thousands called for Durai's resignation. New Chairman Gerard Ee Hock Kim and CEO Eunice Tay were able to lead NKFS back from disgrace to again take its place as a trusted institution in Singapore. But at a cost: NKFS slashed staff, cut programs and accepted government oversight in exchange for subsidies.

After another scandal resulted in the 2016 removal of Tay's successor, she returned in an interim capacity. The number of new kidney disease patients continued to grow rapidly and new dialysis centers quickly filled to capacity. In mid-2017, Tay was looking for ways to address the growing

incidence of kidney disease and the cost of treating it. Might a public-private partnership with Singapore’s Health Promotion Board enhance prevention efforts?

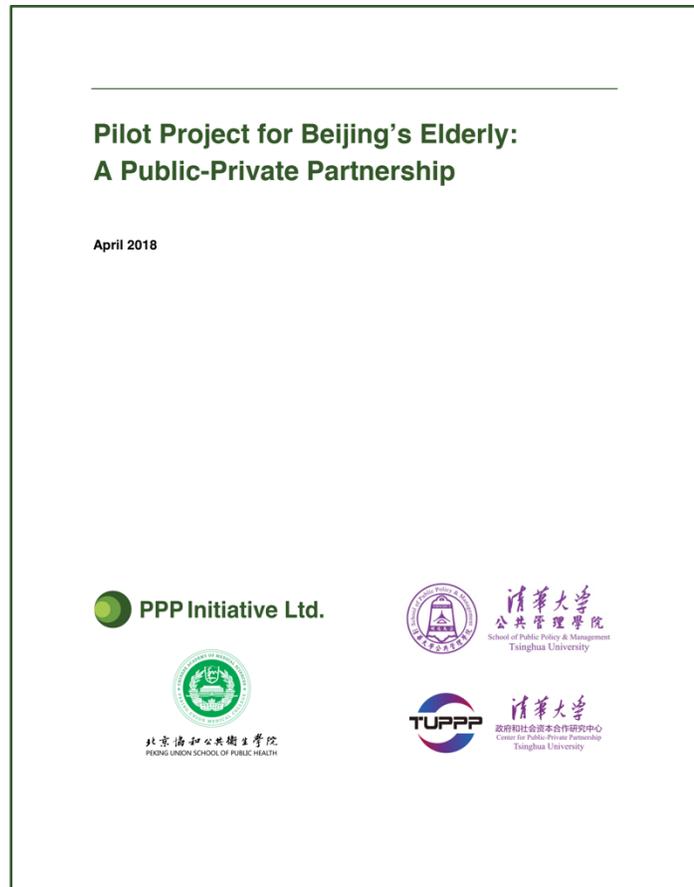
Pilot Project for Beijing’s Elderly: A Public-Private Partnership

By the early 21st century, China faced a severe aging population problem, with projections that fully 40 percent of Chinese would be over 60 by 2050. Moreover, 150 million seniors (and growing) suffered from chronic diseases. At the same time, the ratio of working people to retirees was predicted to fall as low as 1.33 to 1. China’s “one child” policy, rural to urban migration, high housing costs and improved medicine all meant that while citizens were living longer, their children—the traditional caregivers—often lived far away. The Chinese government had to build from scratch an eldercare system that included housing, activities and medical treatment.

A new public-private partnership in Beijing’s Chaoyang District, Gonghe Senior Apartments, tested the ability of a PPP to provide eldercare. The district’s Civil Affairs Bureau donated the land and the building, and the Yuecheng Senior Living company paid most startup costs and operated the facility. Gonghe CEO Tan Jiangyi wondered if technology could help control the facility’s costs, how to recruit and retain the qualified staff she needed, and how the PPP could achieve sustainability.

Wenchuan Rebirth: Partnership for Life

On May 12, 2008, an historically powerful earthquake hit the county of Wenchuan in Sichuan Province, killing 16,000, injuring 35,000, and leaving 7,500 missing in two minutes. The quake destroyed much of the county’s infrastructure: roads, communication systems, housing, industry, farmland—and medical facilities. In rebuilding, the US-based Cisco Systems contributed millions for technology and created a telemedicine network that connected a renovated Wenchuan County People’s Hospital with other medical centers. The network gave local doctors virtual access to national and international medical expertise, to the benefit of hospital patients.



Beijing Eldercare Case Study
Authors: Kirsten Lundberg for Alan M. Trager
April 2018

In 2010, Wenchuan Mayor Tongrong Zhang realized that the telemedicine network had the potential to provide basic and high-quality care to all residents of mountainous, poverty-stricken Wenchuan. Together with the Chinese Red Cross Health-for-All Pioneer Foundation, he launched a pilot mobile clinic program. By 2015, mobile clinics had created health records for 92 percent of the population. Zhang was gratified that area party leaders wanted to build on Wenchuan's success, but he worried that the model would scale poorly. How could Wenchuan best leverage its expertise for wider benefit? Did a public-private partnership make sense? Intergovernmental agreements?

Hongqiao International Medical Center

In 2009, the Minhang District (Shanghai) government authorized a new entity: the Hongqiao International Medical Center (HIMC), a medical park of several hospitals, research facilities, and a medical and technology center. HIMC was an ambitious public-private partnership; its intended clients wealthy foreign and domestic consumers who could afford top-flight medical treatment.

But progress was slow: different levels of government each had its own regulatory approvals process, and HIMC's goals at times diverged from those of the district. Investors were slow to materialize and high-caliber partners hard to find. Su Xu, director of the Minhang District Health Bureau and of the HIMC Facilitation Office, was particularly frustrated over negotiations with Singapore-based private healthcare provider ParkwayHealth to build a private general hospital.

Absent the hospital, HIMC delayed its opening. But government supporters were anxious to see HIMC open before they left office, as was Xu—due to retire soon. What, muller Xu, would persuade Parkway to commit? Maybe the public-private partnership model was not well suited to this project? Might another approach be better? HIMC seemed a worthy undertaking and enjoyed high-level support. Why, then, was it taking so long to complete?

Steward Healthcare System

In 2010, private equity investor Cerberus Capital Management purchased a struggling network of charitable Catholic community hospitals in Boston, and created the Steward Healthcare System to manage it. Overnight, the network transformed from a non-profit to a private, for-profit enterprise. The dilapidated Steward hospitals suffered from years of deferred maintenance; Steward also had unfunded pension obligations of \$495 million. But its mission—healthcare for all regardless of ability to pay—was crucial to the communities it served.

Cerberus named Dr. Ralph de la Torre as CEO. De la Torre's plan was to lure sufficient patients from Boston's prestigious and expensive teaching hospitals to revitalize the network and become a prototype for financially viable universal access to healthcare. Yet net losses continued to mount, forcing Steward to take on increased debt. By 2015, de la Torre was casting about for other sources of cash—including real estate investment trusts (REITs). In early 2016, he started to explore whether Steward could leverage all its real estate through a comprehensive sale/leaseback deal with one REIT. Would this deal finally place Steward on firm financial footing?

Section II: Healthcare PPP Forums

Overview

PPPI co-sponsored four forum events in China and Singapore to showcase the output of the Case Development Program and to provide an academic setting for a public discussion of healthcare PPP issues, applications and challenges. The first four cases (Wenchuan, National Kidney Foundation, Steward and Hongqiao International Medical Center) were presented in November 2017 and two larger cases (Health Promotion Board and Beijing Eldercare) in late April/early May 2018. The second set of forums was strongly influenced by other PPPI engagements in Lesotho, Saudi Arabia, and for the World Health Organization (see Section III below).

Co-Sponsoring Institutions

PPPI selected two leading Asian universities as forum partners and co-hosts: Tsinghua University in Beijing and the National University of Singapore (NUS). Professor Trager serves as International Chief Specialist at Tsinghua's Center for Public-Private Partnerships (TUPPP) and knows well the Lee Kuan Yew (LKY) School of Public Policy at NUS. Both use the case method and run executive education programs.

TUPPP joined Tsinghua's School of Public Policy and Management and the School of Public Health at Peking Union Medical College in supporting the forums. NUS Lee Kuan Yew School of Public Policy, the Saw Swee Hock School of Public Health and Professor Lim Yee Wei from the Yong Loo Lin School of Medicine all contributed.

PPPI contributed forum content, speakers and funding while its university partners brought event-planning expertise and collaborative relationships with faculty. PPPI employed research assistants at both schools and Professor Trager made six forum-related trips to Asia. The co-sponsors appreciated the collaborative nature of the forums, as well as translation of the case studies and presentations into Chinese.

November 2017 Forums

Bringing together public and private sector leaders with domestic and international academic experts, the Healthcare PPP Forums on November 3 and 11, 2017 addressed the importance of public-private partnerships in healthcare.

In Singapore, the LKY Healthcare PPP Forum on November 3 ran a half day, with two panels that discussed PPP healthcare benefits as well as the skills and frameworks necessary to govern and manage a successful PPP. Some 80 people attended. LKY Vice Dean (research) Eduardo Araral later noted:

The application of Public-Private Partnerships (PPPs) to healthcare is important... The frameworks and skills analyzed by Professor Trager, and applied to the new case studies, should materially lower the risks in healthcare PPPs.

Dr Mooppil Nandakumar, director of clinical services at NKFS, emphasized how prevention reduces kidney complications for diabetes patients, including the elderly. The NKFS case study alluded to the Health Promotion Board and its prevention efforts; this later became the subject of a larger Case Development Program case.

Close to 110 attendees participated in the TUPPP Healthcare Forum in Beijing on November 11. Tsinghua Public Policy School Academic Dean Yongheng Yang managed the half-day program (Yang is also deputy director of Tsinghua's Center for Public-Private Partnerships). Professor Trager delivered a keynote speech on the case studies, plus the frameworks and skills that support healthcare PPPs. Professor Yansui Yang, director of the Tsinghua Center for Employment and Social Security, presented on eldercare as a social and financial problem. CEO Jiangyi Tan talked about Gonghe Senior Apartments—Beijing's first public-private eldercare partnership. Her presentation led to a case focused specifically on Gonghe—with Tan as the protagonist. Zechang Xu, executive general manager of China Resources Phoenix Healthcare Holdings, acknowledged the importance of two major skills needed to partner with government on healthcare PPPs: communication and negotiation.



**Presenting at the Healthcare PPP Forums at Tsinghua University in Beijing
November 2017 and April 2018**

April/May 2018 Forums

Building on the success and learning of the November 2017 forums, the April 26 and May 4, 2018 forums recalibrated to focus on two major policy and implementation issues: eldercare and the rise of non-communicable diseases in Singapore and China. Both forums benefited from the increased interest in healthcare PPPs sparked by the November forums, and the addition of public health graduate schools as co-sponsors.

Close to 80 attended the Beijing forum on April 26. Both Dean Yuanli Liu (School of Public Health, Peking Union Medical College) and Professor Yansui Yang spoke about partnerships to resolve China's aging society and eldercare financing challenges. Eli Lilly Vice President for Global Health Problems Dr. Evan Lee, based in Geneva, discussed China's diabetes problem and the contribution that public-private partnerships could make. Dean Liu was a co-sponsor of the forum.

Approximately 110 attendees participated in the second Singapore forum on May 4, including 30 employees of the Ministry of Health. The first panel focused on Healthcare PPPs and Healthcare Economic Policy Impact. Following PPPI's presentation of its two healthcare PPP case studies, Health Promotion Board CEO and case protagonist Zee Yoong Kang reinforced the key learnings of the forum.

Professor Chia Kee-Seng, former dean of the NUS Saw Swee Hock School of Public Health, made a strong case for translating public health research into public policy. A second panel delved into PPP solutions to Singapore's eldercare economic and social challenges. CEO and Director Peh Kim Choo of the Hua Mei Centre for Successful Ageing at the Tsao Foundation presented eldercare programs and models. Dr. Jason Phua, CEO-designate of Alexandra Hospital (Singapore), presented new models of hospital healthcare for the elderly.

At the end of the forum, PPPI, which had arranged for the deans of the two schools to meet, facilitated the signing of a Memorandum of Understanding between Saw Swee Hock School of Public Health and the School of Public Health at Peking Union Medical College. According to Dean Yik-Ying Teo of NUS' Saw Swee Hock:

It is a real delight that the PPPI forum in Singapore has provided the opportunity for the two leading public health institutions in Singapore and China to forge an alliance to improve population health in Asia. Challenges such as the provision of universal health care, the emergence and persistence of antimicrobial resistance, and the integration of primary health care, all set within the context of rapidly ageing populations are common to many countries in the world. The partnership between the NUS School of Public Health and the Peking Union Medical College will look at how health systems develop effective strategies and solutions to manage these global challenges.

Conclusion

The four PPPI forums raised for discussion urgent issues around healthcare PPPs. Their success was evident in the seniority of the various government, private sector, and civil service representatives in attendance. Detailed presentations and panel discussions led to lively question-and-answer sessions

of over 30 minutes, and PPPI's emphasis on the convergence of eldercare and NCDs was well received.

The forums brought important issues to the fore and documented the importance of case studies in capacity-building. The forums will in the future give way to multi-day teaching and learning engagements.



**Q&A at Healthcare PPP Forum at National University of Singapore
May 2018**



**Healthcare PPP Forum at National University of Singapore
May 2018**

Section III: International Engagement

Overview

In addition to the Case Development Program and the healthcare PPP forums, PPPI engaged with experts, academics, decision makers and executives on the international stage on the potential of public-private partnerships to address healthcare issues in the 21st century. In general, others accepted PPPI as a neutral party—partial neither to the public nor the private sector—and a professional intermediary with objective, “down the middle” facilitation skills and analyses.

PPPI facilitated an introduction between the deputy secretary of the U.S. Department of Health and Human Services (HHS) and the Singapore Minister of Health at a World Health Organization event; aided communication between executives in Saudi Arabia’s Ministry of Health and its National Center for Privatization and PPP; and played an active but neutral role during the March 21-22, 2018 Technical Consultation of the World Health Organization Independent High-level Commission on NCDs.

PPPI also engaged with the private sector, both in the United States and internationally, through the Global Initiative for Health and the Economy, a unit of the U.S. Chamber of Commerce.

Government of Lesotho

PPPI designed and conducted a series of Advanced PPP Negotiation Workshops for the Government of Lesotho’s Ministry of Health and Ministry of Planning and Development, funded through a sole-source procurement from the World Bank. Lesotho is the site of the World Bank’s flagship healthcare PPP. The workshops brought together government executives in a structured learning environment that emphasized the use of critical thinking and other sophisticated skills. It was the first training for the Government that addressed the challenges of negotiating a large, integrated healthcare PPP contract with the private sector.

Kingdom of Saudi Arabia

The Kingdom of Saudi Arabia has embarked on an enormous economic transformation (Vision 2030). It also is grappling with a large supply-demand imbalance in healthcare, with domestic capacity stretched well beyond sustainable levels. PPPI engagement in Saudi Arabia began in January 2017 with Professor Trager’s PPP Workshop conducted for the Johns Hopkins Aramco healthcare systems joint venture.

Since January 2017, Professor Trager visited Saudi Arabia three times: first, to give the Johns Hopkins Aramco workshop; second, in January 2018 to conduct a series of PPP capacity-building

workshops for the Ministry of Health, the Vision Realization Office (VRO) and the National Center for Privatization and PPP; and finally in March 2018 for a negotiations workshop with the Ministry of Health and VRO. These workshops emphasized the integral relationship between negotiation and PPP as it relates to Saudi Arabia’s “Vision 2030” framework urging the increased participation of the private sector.



**Certificate from Kingdom of Saudi Arabia
Healthcare PPP Advanced Workshop
March 2018**

World Health Organization Independent High-level Commission on NCDs

HHS recommended Professor Trager to WHO to serve as a Technical Expert during the Technical Consultation of the WHO Independent High-level Commission on NCDs on March 21-22, 2018 in Geneva. PPPI’s inclusion demonstrated the importance of PPPs to international solutions for how best to control non-communicable diseases.

Members of the technical consultation provided expert opinions on how the international community could achieve Sustainable Development Goal (SDG) 3.4 as established by the United Nation’s 2030 Agenda for Sustainable Development: “one-third reduction of premature NCD mortality by 2030 through prevention and treatment and promote mental health and wellbeing.”

PPPI’s contribution is evident in the final report, which stated that “building capacity to engage constructively and negotiate with the private sector, including public-private partnerships” would accelerate progress towards the target one-third reduction. The report also mentioned “encouraging the private sector to provide sustainable financing and share knowledge, expertise, and technology,” points raised for discussion by cases in the PPP Case Development Program.

An openness towards PPPs as one potential solution to the NCD issue was implied in the WHO Commission final report, which noted that “public-private partnerships can be an important tool to contribute to effective NCD responses.” However, the final report seemed somewhat suspicious of PPPs when it observed: “It is important that conflicts of interests are adequately addressed, with transparency and focus required to ensure that public policies and public-private partnerships are in the public interest, provide public value, and do not undermine the sustainability of financing health systems.”



WHO Independent
High-level Commission
on NCDs

Report of the Technical Consultation

21-22 March 2018
Geneva, Switzerland

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WHO Independent High-level Commission on NCDs – Technical Consultation
March 2018 in Geneva
Technical Expert, Alan M. Trager, recommended by HHS Office of Global Affairs

Section IV: Key Learnings

The use of public-private partnerships to help mitigate the impact of NCDs on eldercare is emerging as a meaningful, persuasive solution supported by evidence-based findings, including in cases developed by the Case Development Program, presentations at the healthcare PPP forums and other PPPI international engagements.

Six key learnings are highlighted in this section: the supply-demand imbalance, the need to commit long-term, the importance of engaging the public as a partner, the potential for labor and technology to complement each other, capacity-building and how to finance healthcare for the poor.

Supply-Demand Imbalance

Many nations, including China and Saudi Arabia, have significantly greater demand for healthcare services than capacity to meet that demand. These supply-demand imbalances in healthcare are bound to worsen in coming years as a result of aging populations and the rising incidence of non-communicable diseases. Growing demand for care is overwhelming existing health systems. If policymakers do not move to narrow the funnel, demand will be even higher in the near-to-intermediate future.

Efforts to balance supply and demand may mean that the elderly choose to work longer and stay in their homes. However, this requires an increased reliance on remote monitoring, family member support and active, healthy lifestyles. An alternative to higher taxes or regulation to promote healthy habits is collaboration with private-sector companies, as practiced by Singapore's Health Promotion Board.

The effect of supply-demand imbalance is evident in Saudi Arabia, where population changes have strained its healthcare systems. A developing middle class is increasingly able to afford the kinds of food that increase the risk of NCDs such as diabetes and heart disease. The Saudi health system is currently treatment-centric rather than preventive. The Health Promotion Board and National Kidney Foundation case studies both demonstrate that a paradigm shift towards prevention is an investment for the future, even though it may not address current supply-demand gaps.

Long-Term Commitment

For individuals to consider prevention a core part of healthcare requires new financial models. For example, the private sector could offer incentives for healthy living that would stave off NCDs. The final report of the WHO NCD Commission cited the need to “develop and implement a new economic paradigm for actions against NCDs, based on evidence that effective measures are investments in human capital and economic growth.”

One example of a long-term outlook is presented in the Health Promotion Board case. Singapore's HPB uses flexible five-year budgets to encourage innovation that annual budget targets might stifle.

Its motto is “dare to try; learn quickly.” Good health is a long-term project, so financial planning for it should be as well. According to the WHO NCD Commission, “governments should prioritize long-term sustainability over short-term gratification, by calculating not only the price of actions and policies today, but also the true cost ... that will be borne by societies in the future.”

Engaging the Public as a Partner

In a successful healthcare public-private partnership, the public must not only be a partner, but willing and enthusiastic. This is true in democracies, communist societies and monarchies alike. Professor Trager explored this important dynamic in a two-part case study at Harvard Kennedy School on the New York City Parks Department’s rehabilitation of city parks. Public parks that were structured as PPPs benefitted from volunteers, not only to reduce maintenance costs but to accelerate the conversion of parks from a public liability into a valuable public asset.

Singapore engages the public as a government partner. Citizens seem to understand that public health initiatives are designed to benefit society at large, and to follow government recommendations. The Health Promotion Board makes extensive efforts to bring both the public and private sectors on board to effect behavioral changes. This national willingness to act is evident in the Health Promotion Board and National Kidney Foundation case studies.

The public’s openness towards a new paradigm of technology-centered care was seen in the Wenchuan case, where residents adapted and adopted telemedicine.

Labor and Technology

One of the principal economic dynamics of the 21st century will be the push-and-pull between labor and technology. Automation has cast a shadow over certain healthcare tasks, although it has yet to pose a significant threat to jobs. Nonetheless, if policymakers want increased quality of care (both prevention and treatment), there must be a corresponding willingness to automate certain types of labor, cutting costs and freeing up resources to complete higher-level tasks.

Technology and labor should be seen as complementary. Even though technology systems are expensive up front, they can result in long-term savings, freeing up resources to pay for skilled staff. For example, Wenchuan’s electronic health records helped physicians deliver better quality care to a wider population; by preventing some illnesses, it cut the cost of treatment. Telemedicine does not replace a doctor, but pairs a patient with a medical specialist anywhere in the world. Technology should not be seen as a threat but a complement to effective labor.

The WHO NCD report suggests that “nurses have especially crucial roles to play in health promotion and health literacy, and in the prevention and management of NCDs.” The Beijing

case showcases the importance of nurses, as a significant lack of skilled geriatric nurses is troubling and a gap that technology cannot fill.

Healthcare technology has revolutionized care in many respects, yet there remains a divide between technology producers and government purchasers. Companies want to sell their product but most public-health systems are struggling to convert due either to capacity or cost concerns. The risk-averse nature of government bureaucracies means that if governments lack the expertise to purchase the correct technology, they often either err or do not purchase at all to avoid expensive consequences. The skills or cost gap was frequently raised at PPPI's healthcare PPP forums as a chief reason why governments hesitated to partner with the private sector. In considering innovation, including big data and digital technology, policymakers must be attuned to expense and trade-offs with labor.

Capacity-Building

Both the public and private sectors need to develop employees with interdisciplinary skill sets for work in healthcare PPPs. Standards have been changing, speaking to the need for and importance of certification programs.

PPPI's international engagements have revealed that policymakers in Belt-Road Initiative countries and in Southeast Asia, including Thailand, Vietnam, and Indonesia, still lack knowledge of and exposure to social PPPs. The WHO NCD Commission's final report cites "insufficient technical and operational capacity" in the public sector as a key challenge to implementation of SDG 3.4.

PPPI first identified an "execution gap" in the "Mapping PPPs Across Countries (China and India)" study it published in 2015. The skills gap and its effect on public-private partnerships was widely discussed at PPPI's capacity-building workshops in Lesotho and Saudi Arabia.

Financing of the Poor

A key financial challenge for healthcare PPPs is how to pay for the poor. They cannot afford market prices for healthcare, meaning that all healthcare PPPs must be social PPPs, with care at least partially subsidized by the government. In eldercare, few financial models cover public sector-financed care for all, except when the wealthy can pay their way and subsidize costs for others. Increased demand from an aging population has meant rising medical costs to society.

The Beijing eldercare case demonstrates that government often cannot afford to subsidize the full cost of eldercare services for the poor. China faces a "scale gap" in eldercare because it lacks both an adequate financing model and a functional healthcare infrastructure. The WHO NCD report makes frequent reference to the vicious cycle between NCDs and poverty: NCDs and their risk factors exacerbate poverty, and poverty increases NCD risk factors.

Section V: Recommendations

PPPI focuses on three key themes: the effect of non-communicable diseases on eldercare, PPP capacity-building, and a flexible model for PPPs. Public-private partnerships require collaboration, and it is encouraging to see global institutions participate in this debate, especially the World Health Organization and the Global Initiative on Health and the Economy.

Convergence of NCDs and Eldercare

Through research and convenings of public, private and civil society leaders, PPPI has confirmed that the effects of NCDs on eldercare will be a driving issue in healthcare in Asia well into the 21st century. There has been visible progress since Dr. Mooppil Nandakumar (National Kidney Foundation) presented the effects of diabetes on long-term health outcomes at the November 2017 forum in Singapore.

The economic and human cost projections of the convergence of NCDs and eldercare are grim. In Singapore alone, the cost of NCDs exceeds S\$1 billion annually, including direct medical costs plus reduced or lost productivity. Unhealthy habits like smoking, lack of exercise and poor diet result in early onset of NCDs. This convergence has a disproportionate impact on low- and middle-income people and nations without the financial ability to pay for prevention, treatment or healthier options.

Case research and forum presentations show that Singapore has begun to implement solutions by engaging the public as a partner (as seen in the Health Promotion Board case), and by balancing future supply and demand through strong civil society leadership (as in the National Kidney Foundation case). However, Singapore is too small, wealthy and developed for its solutions, however promising, to scale or transfer internationally, or even regionally within Southeast Asia.

Flexible PPP Model

While the effects of NCDs on eldercare is an international issue, there will not be a single, prescriptive one-size-fits-all solution. In fact, country context is extremely important.

In September 2017, Professor Trager advocated in Beijing a flexible model approach to Chinese investment in Belt-Road Initiative countries as well as a departure from the current paradigm of hard infrastructure investment. In PPP parlance, a flexible model refers to collaborative governance structures as well as investment in “21st century infrastructure” —hardware, software, technology and social services.

Multilateral convenings are inherently biased towards one-off solutions. Decision makers, however, must recognize that what works in Singapore may not work in Saudi Arabia or China. Each nation features its own unique system of governance and economy. The World Health Organization leans heavily upon taxation as a tool to effect change, but this may not be effective in all contexts.

The World Health Organization and international development banks have taken steps towards adopting PPPs. This is evident in the technical consultation report and final report by the WHO High-level Commission on NCDs. The WHO report begins to take country-specific context into account when determining interventions. A key takeaway from the Singapore Health Promotion Board case study is that policymakers must make multiple attempts to intervene if they wish to affect the widest number of individuals.

A flexible PPP model shifts the playing field away from specific structures and towards creative, multi-sector PPP solutions that align public and private interests and values. PPPI's Case Method relies on case studies to analyze common themes across countries such as taxation and voluntary action, while recognizing the need for country-specific skills and frameworks.

PPPI uses a broad definition of healthcare in the 21st century. The Wenchuan case establishes that health is not just about treatment, but also prevention; that health is not just physical, but has contributing economic and social factors.

Flexible PPP models push stakeholders to look beyond short-term financing wins towards longer-term commitment and institutional collaborations. The PPP alignment of public and private operational capacities and values is crucial to overcoming existing biases that stand in the way of collaboration, for example, public sector distrust of private sector profit motives.

Building Capacity for PPP

In implementing flexible PPP models, it will be critical to have employees and decision makers who are knowledgeable and skilled in navigating both the public and private sectors. The WHO NCD Commission reported that “insufficient operational and technical capacity” in both the public and private sectors is a central challenge in controlling NCDs, a conclusion also true for eldercare.

The PPPI forums served their purpose by raising issues and key questions for expert audiences in China and Singapore, calling into question whether either the public or the private sector is ready to engage with each other. Another takeaway from the forums is that there is room for improvement in universities' responses to the convergence of eldercare and NCDs.

We expect increased demand for detailed, in-depth engagement, including case-based workshops and executive education programs. Evidence-based case studies are widely accepted as an effective tool for building advanced skills and frameworks. Alongside workshop and curricula development, scholarship financing is needed to train and educate public employees. Such future engagements will be approximately 5 days in length.

Research funding will be required to conduct healthcare PPP research in additional countries in Asia, responding to a proven benefit of the Case Development Program—that individuals learn more from examples within their own countries. Country-specific case studies allow students to focus on facts, frameworks and skills. As China continues to pursue the Belt-Road regional initiative, there is

an opportunity for both Chinese enterprises and those in “recipient countries” to bridge capacity gaps and ensure knowledge and skills transfers.

Of the advanced PPP skills, negotiation is the most important. Negotiation skills allow public and private partners to align values and interests, as well as create collaborative governance structures that share and balance risk and opportunity. Building skills in a classroom or workshop setting will result in participants and institutions prepared to pilot PPP projects, with close support and oversight by PPPI.

Section VI: Looking Ahead

Developing Case-Based Curricula

PPPI's Case Development Program has produced the first set of healthcare PPP case studies focused on Asia. Incorporating of these cases into public policy and public health graduate programs, as well as executive education, will ensure that qualified instructors teach the key skills, frameworks, and lessons.

PPPI forum co-sponsors are well-positioned to be early adopters of a case-based PPP curriculum. The NUS Saw Swee Hock School of Public Health has already taken promising steps in this direction. As the Memorandum of Understanding signed at PPPI's May 2018 forum in Singapore symbolizes, PPP education is interdisciplinary and cross-sectoral. Schools of public health, public policy and business should jointly develop case-based curriculum, training and courses.

Case-based programs exist at many leading international research institutions. PPPI hopes to continue its partnerships with Tsinghua University and NUS and promote Case Method in PPP courses. The current gap and delay in responding to the convergence of eldercare and NCDs reflects



Prof. Liu Yuanli and Prof. Yik-Ying Teo at the Signing Ceremony for the Memorandum of Understanding May 2018

in part how difficult academic institutions can find it to adapt to the cross-disciplinary, multi-sector issues associated with PPP. PPPI has the experience and expertise necessary to put case studies in the hands of more students across Asia. PPPI is also flexible and independent, allowing it to respond quickly to the ever-evolving healthcare PPP environment.

Future International Engagement

PPPI looks forward to continuing to share the lessons learned in the Case Development Program, healthcare PPP forums and its other engagements, moving beyond the one-day format to multi-day engagements. A growing presence on the world stage will be mirrored by growth in PPPI's international research team.

But PPPI needs to take its work to scale. The existing cases focus on China and Singapore, but their lessons are applicable across Asia, specifically Southeast Asia. A regional teaching and workshop program would emphasize the flexible PPP model and serve as a pilot for advanced PPP capacity-building using distance learning as a follow-on to an in-person workshop. After PPPI's most recent engagement in Saudi Arabia, participants and executives requested additional training and workshops on professional development, coalition-building and change management.

Given the far-reaching impact of the convergence of eldercare and NCDs, PPPI has identified additional international institutional partners to help spread the message of healthcare PPPs. We have taken a fresh look at curriculum, at system design, and at individual country context. We hope that new multilateral and multi-sector partners—from universities to international organizations and corporations—will help us take fullest advantage of PPPI's demonstrated ability to serve as an objective trainer, intermediary and facilitator in the crucial field of healthcare.