

全球健康项目 Global Health Program

A Decade Journey Global Health Program Ten Year Anniversary Report

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PREFACE



A Decade Journey

This year marks the tenth anniversary of the Global Health Program at Duke Kunshan University (DKU), which was established jointly by DKU and the Duke Global Health Institute in September 2013. The program welcomed its first cohort of students pursuing the Master of Science in Global Health (MSc-GH) in August 2014. During this 10-year journey, we have seen the rapid development of our program and our university, experienced the blooming of global health worldwide, and achieved a great deal in global health research, education, and cooperation.

Over the past ten years, the number of faculty and staff in the program has increased from five to fifty. We have conducted 126 research projects with international and domestic funding of US\$ 11.4 million, covering topics such as health policy and systems, noncommunicable diseases, healthy aging, environmental health, and One Health. Our researchers have published more than 550 academic papers, books, and chapters, helping place DKU among the ESI Global top 1% in Clinical Medicine for five consecutive years since 2018, according to Clarivate Analytics. The number of students entering the MSc-GH program has increased from five to twenty-eight, and all graduates have been employed or continued their global health education and research.

The Global Health Program has also expanded its reach and partnerships within China and across the globe. It was the founding institute of the Chinese Consortium of Universities for Global Health, which now includes 31 universities. We now have established partnerships with more than fifty organizations in thirty countries across Asia, Africa, and the South Pacific.

The past ten years have seen fundamental and historic changes. The COVID-19 pandemic highlighted the importance of global health infrastructure, cooperation, and preparedness to respond to emerging infectious diseases, while also accelerating the progress of vaccine science and delivery. We have witnessed significant advances in telemedicine, mobile health applications, and digital health platforms, which have played crucial roles in improving access to healthcare services and information, particularly in underserved regions.

Despite this progress, health disparities between different regions and populations persist. NCDs such as cardiovascular disease, diabetes, and cancer have become increasingly significant contributors to the global burden of disease. The health impacts of climate change, such as increased heat-related illnesses and the spread of vector-borne diseases, have been a growing concern. The recognition of the interconnectedness of human health, animal health, and the environment has led to a greater emphasis on the "One Health" approach. The challenge for global health is to respond to these changes by building better, more resilient health systems that can move the world toward universal health coverage.



Dr. Shenglan Tang

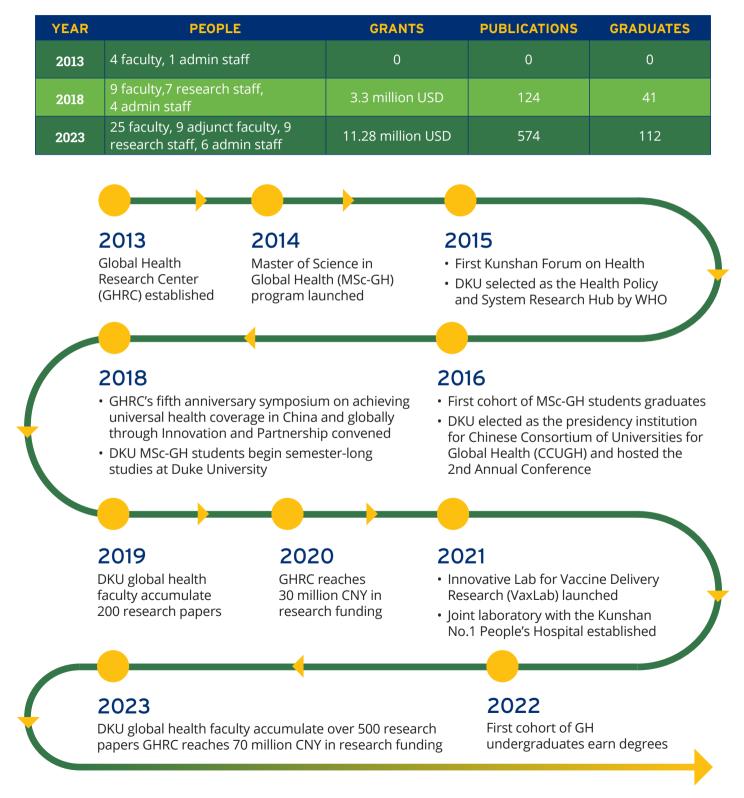
Dr. Yunguo Liu

With its mission of "promoting health equity and improving health for all in China and worldwide," the DKU Global Health Program is well positioned to meet this challenge. This anniversary is an opportunity to review our progress, achievements, and lessons learned over our first ten years, and recommit ourselves to sustaining our efforts in the next decade and beyond.

Yours in health, Co-Directors, the Global Health Program, Duke Kunshan University **MILESTONES**



Take an interactive journey on our website.





Research is written into the DNA of the Global Health program at DKU. Since its inception in September, 2013 – the same time as the formal approval by the Chinese Ministry of Education for the university—the program has grown substantially in terms of people, grants, outputs, and impacts.

RESEARCH DOMAINS & PRIORITY AREAS

HEALTH SYSTEM AND POLICY

- Primary health care
- Health economics
- Health informatics and data science

POPULATION HEALTH AND WELL-BEING

- Maternal and child health
- Healthy aging
- Non-communicable diseases (NCDs)

HEALTH SECURITY AND ENVIRONMENT

- Infectious diseases
- Environmental health
- Health security

RESEARCH HIGHLIGHTS

Improving China's Health System



From 2016 to 2019, Professor **Shenglan Tang** led a large research team in assessing the progress of provinces throughout China in achieving the goals outlined in the Healthy China 2030 plan, as well as the United Nations' health-related sustainable development goals. The team comprehensively and systematically evaluated health indicators to provide policy recommendations for achieving health targets. This work has resulted in more than a dozen research papers in international peer-reviewed journals and a book by the People's Health Publishing House. In May 2018, the team held a seminar in Beijing, inviting more than 60 domestic and international officials and experts from the Development Research Center of the State Council, the Health Development Research Center of the National Health Organization, the World Bank, universities and research institutions to jointly discuss China's plan to achieve global health goals.



In 2022-2023, Professor **Yunguo Liu** and Professor **Qian Long** have led a case study in China as part of the multi-country project supported by World Health Organization (WHO) to summarize purchasing instruments and arrangements to improve the quality of health services for chronic illness. The project team assessed the National Basic Public Health Services Program, one of the five priorities for action in the new round of comprehensive health system reforms in China since 2009. The project team conducted a scoping review and qualitative study in two provinces to explore and summarize good practices in and challenges to improving the quality of care for chronic illness across regions with different levels of socioeconomic development. WHO published the case study report and policy brief in October 2023 for wide dissemination.

Environmental Health



Professor **Jim Zhang** leads environmental health research projects on topics such as air pollution exposure and health

impact assessment. He and his team have discovered novel biomarkers that show human exposure to toxins in the air and have examined the biological mechanisms by which environmental exposures cause adverse health effects. They also assess health benefits that result from air pollution interventions at the public policy and household levels. In one study funded by the National Natural Science Foundation of China, Zhang partnered with Tsinghua University's program on building technology and science to examine whether building design elements can prevent polluting particles from reaching indoor spaces.



Professor **Keith Dear** has been dedicated to helping urban cities address the causes and consequences of climate change. He is

a lead author for Climate Change and Cities: Second Assessment Report of the Urban Climate Change Research Network, covering a range of issues, from urban health to food to water and energy systems, transportation, economics and private finance, and governance. His commentary titled, "Climate and health: mortality attributable to heat and cold" was featured in The Lancet.

Non-communicable Disease



A research team led by Professor Lijing L. Yan developed and evaluated a primarycare-based intervention for the management of stroke, the leading cause of disability, morbidity, and mortality in rural China. From 2016 to 2019, the team conducted extensive research in Nanhe County, Hebei Province, to

develop the intervention, called System-Integrated Technology-Enabled Model of Care (SINEMA), which uses a phone app for village doctors and voice messages for stroke patients to improve recovery. Evaluation of more than 1,200 stroke patients in 50 villages found that the SINEMA intervention was effective in significantly reducing blood pressure, improving medication adherence, physical functioning, and health-related quality of life. The team also found significant reductions in stroke reoccurrence, hospitalization, disability, and mortality. Plans to disseminate the SINEMA model to other chronic diseases and other countries are under way.





Professor **Abu Abdullah** led a project to minimize the adverse health effects of secondhand smoking on children, especially in rural China. Working with colleagues at Fudan University, the Taizhou Centers for Disease Control & Prevention and Kunming Medical University, Abdullah and team

members tested the effectiveness of an intervention in which community health workers counseled parents about the importance of not smoking around their infants and children and offered assistance in stopping smoking. About one third of the world's smokers live in China, according to the World Health Organization, and an estimated 1 million Chinese die each year from tobacco-related illnesses. The lack of tobacco control policies in rural areas makes exposure to smoke an especially important issue for children in rural parts of the country.

Infectious Disease



Professor **Gregory Gray** led emerging infectious disease projects focusing on the intersection of human and animal health and the environment. Gray's DKU One Health team led a project to isolate and identify emerging respiratory viruses by collecting bioaerosol samples from three schools and one open poultry market in China. The team also took nasal swabs from students exhibiting flu-like symptoms and did PCR testing to identify various respiratory viruses. This research is advancing the understanding of how viruses jump from animals to humans and how to prevent novel pathogens from causing wider outbreaks in humans.



Professor Benjamin Anderson and Professor Sajid Umar led One Health research and training network at Duke Kunshan University (2021-to date) focusing on zoonotic spillover that occur at the human and animal interface. The One Health research team led projects to study evolutionary dynamics of respiratory pathogens by utilizing cutting-edge epidemiological and metagenomic strategies at human and animal in collaboration nexus with

Guangzhou University of Chinese Medicine, veterinary clinics, livestock farms and pharmaceutical industry. The team also led a project to explore antimicrobial resistance in animal specimens through a One Health lens in China and Kenya. The team comprehensively evaluated the risk of zoonotic spillover and provided a useful information to clinicians, veterinarians, and policy makers. This work has resulted in more than five research papers and a book chapter on "Reverse Zoonotic Transmission". In addition, One Health research team has trained several students and livestock farmers to enhance their knowledge and skills about One Health and emerging infectious disease. This interdisciplinary approach is not only leading to high quality research outputs but can also serve as an important training platform for students to mitigate and prevent infectious diseases.



As the undergraduate and master's programs at DKU continue evolving, more faculty members have joined GHRC. They have diversified the research portfolios of the GHRC and led a number of multidisciplinary collaborative research projects. Professor Linfeng Huang has important made ground in understanding Clostridioides difficile infection (C. diff), an antibiotic-resistant pathogen that can cause severe diarrhea, belly pain, and fever and potentially lead to death. Professor Yu Wang has been actively involved in the Vaccine Delivery Research and Innovation Lab project, applying sociological theories and methods to address the issue of vaccination hesitancy. Professor Shixin Xu develops a model-data integrated method for acute ischemic stroke core volume estimation to help assess the extent of brain tissue damage in patients. Prof. Sajid

Umar conducts research on the molecular detection of multidrug-resistant bacteria and screening of antimicrobial resistance genes.

Healthy Aging

Professor **Chenkai Wu Chenkai** is conducting research on early screening, diagnosis, and intervention strategies for sarcopenia among older adults in China. The three-year project is working to develop a prevention and treatment system for the disease, an age-related progressive loss of muscle mass and strength. Wu's team has created a risk prediction model for sarcopenia



tailored to the aging population in China and established a demonstration area in East China for the early prevention and treatment of the disease. The project is also validating and evaluating diagnostic techniques, as well as personcentered intervention strategies. The work is part of the Ministry of Science and Technology's National Key Research and Development Program led by West China Hospital of Sichuan University.

EDUCATION

RAY WANG | CLASS OF 2023

My DKU experience transformed me, providing research skills and a global health perspective. Now, at Vital Strategies, I



apply these skills to tackle global health challenges like tobacco control in China, thanks to DKU's unique platform. Grateful for DKU's role in shaping me as a proactive agent of change.

Master of Science in Global Health Program

A decade ago, the MSc-GH program embarked on a transformative journey with a pioneering group of 5 students. From that modest beginning, our program has steadily flourished, evolving into a beacon of academic excellence. The program has educated 112 talented students, with 28 exceptional individuals joining our most recent entering cohort, the Class of 2025.

Our program stands out for its high-quality curriculum and varied extracurricular activities, fostering an excellent learning environment to propel students toward their career goals. Students benefit from opportunities to work and live on two vibrant campuses – DKU and Duke University – and complete 10-week field studies. These experiences enrich students' cross-cultural learning, instilling the confidence and practical skills to translate knowledge into practice.

MISSION

To train the next generation of researchers, practitioners, and leaders in the global health field through high-quality educational programs and opportunities for scientific research participation







USA





Program Highlights

Nicholas Peoples (Class of 2018) was selected as a Tsinghua University Schwarzman Scholar for 2023. The Schwarzman Scholars program is one of the most competitive scholarship programs in the world, with only a 5% acceptance rate from approximately 3,000 applicants worldwide. As a Global Health Corps Fellow, Peoples spent 13 months in Malawi leading various initiatives to prevent mother-to-child transmission of HIV.

Yue Suo and **Bolu Yang** (Class of 2023), earned a prestigious invitation to the 2022 World Health Summit in Berlin, Germany. They were among a selected group of six students chosen from hundreds of competitors to receive research awards from the WHO. Yue's research delves into policies and regulations regarding sugar-added beverages in China; Bolu's work centers on smoking bans and regulations within the country.



Xurui Jin (Class of 2021) led a study that unveiled pivotal determinants contributing to the underrepresentation of women in cardiovascular trials. The findings were published in Circulation, a prominent medical journal. The study identifies approaches that could help

improve the inclusion of women in future clinical trials.

Graduate and undergraduate students in global health and other health-related fields at DKU receive **funding from donors to support internships in United Nations agencies**. Students have used the funding to work with agencies such as the WHO, development banks, healthrelated international foundations, and international nongovernmental organizations.



Founded in 2019, the **Young Leaders of Global Health Club** (YLGHC) prepares students for impactful careers in health-related fields while making a difference in their communities. The YLGHC, mentored by global health faculty members, provides opportunities for students to engage directly with health initiatives. Through collaborative projects and community service, the club plays an important role in developing the leadership and civic engagement of our global health students.

A DKU team won **first place at the 2021 Emory Morningside Global Health Case Competition**, which tasked students to develop COVID-19 vaccination programs that address the challenges of vaccine distribution, hesitancy, and equity. DKU's team, which included Sage Wyatt (Class of 2021) and five undergraduate students, proposed a vaccination program that prioritized at-risk communities in Bangladesh and included a multichannel campaign to reach the poorest communities. Fifty-two teams from fifteen countries participated in the competition.

DARCI DAVIS | CLASS OF 2021

The Global Health Program's international perspective, small classes, and top-notch professors improved my research skills and cross-cultural teamwork. DKU shaped my adaptability and resilience. I recommend it for a transnational global health education. Post-graduation, I worked as a Technical Services Analyst at Epic, a leading US electronic health record system."



Global Health Seminar Series

The global health program at DKU has hosted 174 seminars featuring world leaders in global health research, policy, and practice to enrich the classroom learning experience of our students and trainees. Speakers have included experts from United Nations agencies, the World Health Organization, the World Bank, the Global Fund, and the World Economic Forum, as well as international organizations, professional associations, world-renowned academic institutes, and health-related industries.

Field Experiences

Immersive learning defines DKU's approach to global health education. Following the foundational academic coursework in the first year, MSc-GH students embark on a mentor-guided, 10-week field study during the summer. These research projects allow students to connect classroom lessons in a practical context, while also engaging them in underserved communities experiencing health disparities. Since 2014, students have conducted field projects in over 20 countries across six continents.





Duan Zhao | Class of 2019 Field project: Alcohol Use Perceptions Risky Behaviors-A Mixed Method Study in Moshi, Tanzania



Wanbing Gu | Class of 2016 Field project: The Influence of Household Economic Status and Food Consumption Patterns on Obesity Rates in Peru

Capacity Building



Advanced Training Course for Officials of Jiangsu Commission of Health to Improve Management Capacity

Besides traditional degree programs, we have also offered other training and capacity building programs. In 2018, we organized advanced training sessions to 180 government officials from the Jiangsu Commission of Health in November 2018. Ten world-renowned experts from China and abroad gave lectures during the training.

Third Chinese Vaccinology Training Held at Duke Kunshan University

In October 2021, DKU hosted the Third Chinese Vaccinology Training in collaboration with Savaid Medical School of the University of Chinese Academy of Sciences. Co-organized by the Graduate School of the Chinese Center for Disease Control and Prevention (China CDC), the program featured vaccine research and delivery experts from prestigious institutions worldwide.

Global Health Capacity Building

In collaboration with the Health Human Resources Development Center, DKU partnered with Peking Union Medical College and Beijing Diplomatic College to organize a workshop in May 2023 to build the global-health governance capacity of key decisionmakers in China. The workshop sought to equip participants with an international perspective on global health issues and enhance competency in health diplomacy.

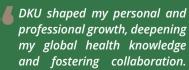
Promoting Global Health Youth Leadership: Frontiers in Health Science Research Forum

The Frontiers in Health Science Research Forum, hosted in October 2018, aimed to nurture youth leadership in global health by encouraging participants to develop global health research projects. The program introduced global health concepts and provided deep insights into global health research, with a focus on fostering problem-solving ability.

Healthcare Big Data Global Summer Institute

More than 100 students from 56 institutions participated in the Healthcare Big Data Summer Institute, an immersive week-long introduction to healthcare data analytics. Held in the summers of 2022 and 2023, the institute engaged students in intensive quantitative and qualitative research methodologies, empowering them to pursue paths in health and biomedical sciences.

QIPING FAN | CLASS OF 2019



I led a postpartum depression study in Sri Lanka, making a meaningful impact. After DKU, I pursued a Public Health doctoral program and am now an Assistant Professor of Epidemiology at Clemson University, thanks to DKU's holistic education."



DKU fosters exploration and hands-on experience. Supportive professors enhance learning. The Global Health Program enriched



my understanding and research skills. Field research in Taiwan, China was a highlight. Post-graduation, I began as a project manager for a Health IT company serving federal clients in the US."

KNOWLEDGE TRANSLATION

The Global Health Program has made significant health impacts in China and the region by bridging gaps between evidence, policy, and practice.







Innovation Lab ^{for} Vaccine Delivery Research



China-Gates TB project

Scientific evidence emanating from the evaluation of the China-Gates TB project on TB control has contributed to the development of China's national five-year TB control plan. In addition, the evaluation team led by Duke Global Health Institute and DKU worked closely with its collaborators from the China CDC and national TB policy leaders to support provinces in introducing multisource financing for TB treatment, including health insurance coverage, medical assistance and government funding, to reduce the out-of-pocket burden on families.

Innovation Lab for Vaccine Delivery Research

Since its inception in 2021, the Innovation Lab for Vaccine Delivery Research (VaxLab) funded by the Bill & Melinda Gates Foundation has generated scientific evidence and carried out advocacy activities to strengthen the national immunization program in China. VaxLab has established close cooperative relationships with centers for disease control and prevention at national and local levels, think tanks, and academic institutions. Working with experts from the Development Research Center of the State Council, VaxLab has published policy briefings on national vaccine strategies, including improving access to HPV vaccines and increasing the uptake of additional vaccines not covered in China's national immunization plan. The evidence and attention generated by these efforts helped lead to the State Council in 2022 issuing a "guideline on expanding domestic demand," which highlighted involving more safe, effective, and affordable vaccines in the program.

Health Knowledge Camp

The Global Health Research Program collaborated in the launch of the Health Knowledge Camp, a project to provide more cutting-edge, professional, and reliable health information to journalists working in health-related fields. Sixty-nine journalists from sixty-four registered media organizations have been involved in the camp, also known as the Media Academy Project, since it began in September 2021. Sixty health-related articles and videos have been released in four themes: health policy, disease management, healthy lifestyles, and innovative medical technologies. Initiated by Merck (China) and supported by the International Center for Communication at Tsinghua University, the camp marks an important exploration to popularize health science and strengthen interdisciplinary collaboration.

PARTNERSHIPS

The Global Health Program develops and sustains partnerships in research, education and practice to make health impacts around the world.

The Global Health Program has formed strategic partnerships with the following partners to establish a platform for global health training and research collaboration:

- Hanoi University of Public Health
- University of Health Sciences in Cambodia
- Health Poverty Action (U.K.) Yunan Representative Office
- China National Center for Chronic and Noncommunicable Diseases Prevention and Control



As of 2023, the program has **established cooperation and contacts with more than fifty academic and research institutes**, United Nations agencies, international and nongovernmental organizations, and health-related industries in more than thirty countries across Africa, Asia, Australia/Oceania, Europe, North America, and South America. Partnerships with Duke Global Health Institute, SingHealth Duke-NUS Global Health Institute and Wuhan University offer opportunities for exchange of students and faculty. The Global Health Program at DKU also hosted nine research fellows from America, Bangladesh, Peru, Rusia, Hong Kong and other Chinese universities.

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The Global Health Research Center was selected as one of three research hubs by the **World Health Organization Asia Pacific Observatory** (APO) on Health Systems and Policies in 2014, consisting of nine academic institutions in six countries. The research hub focused on comparative country studies on health systems development in the Asia-Pacific region. By 2019, the hub hosted six projects that covered a range of topics, including community engagement and integrated care for chronic conditions, attracting and retaining rural primary healthcare workers, the use of e-Health programs for primary service delivery and migrant health service utilization. The study countries included India, Vietnam, Laos, Bangladesh, Cambodia, Nepal, Philippines, Fiji, Singapore, and China.



The Global Health Program is one of ten founding members of the **Chinese Consortium of Universities for Global Health (CCUGH)**, which was established in 2013. Other founding members include Peking University, Peking Union Medical College, Fudan University, Wuhan University, Kunming Medical University, Chinese University of Hong Kong, Zhejiang University, Central South University, and Sun Yat-sen University. CCUGH members have now expanded to thirty-one universities in China. The DKU program continues to play an active role in CCUGH events, capacity building activities, and efforts to strengthen partnerships.

LOOKING FORWARD





Building on both the successes and lessons learned during its first ten years, the Global Health Program at DKU will continue to support both global and national health priorities in the coming decade. Its strategy is aligned with the WHO's Sustainable Development Goals (SDGs), the Healthy China 2030 initiative, and the broader aims of the university.

The Global Health Program's Strategic Plan for 2022-2027 outlines four key focus areas: research, education, knowledge translation and partnerships – with the ultimate goals of improve health equity and enhance the health status of the population in China and around the world.

In research, the program has identified three broad areas that align with both China's health agenda and the WHO's SDGs: health systems and policies, population health and well-being, and health security and environment. The specific research priorities within these areas are primary healthcare, health economics, data science, healthy aging, noncommunicable diseases, maternal and child health, infectious diseases, including zoonotic and emerging diseases, environmental health especially climate change and health. These areas are intended to foster interdisciplinary collaboration and make efficient use of resources. Intersecting all of these areas are innovation and equity, which are significant cross-cutting issues.

Regarding **education**, we aim to expand the Master of Science in Global Health program and undergraduate global health program. We also seek to develop specialized training initiatives for physicians, junior faculty, and public health practitioners, either independently or in collaboration with related institutions at DKU, Duke-National University of Singapore (Duke-NUS), and Duke University.

To **reduce the gaps between scientific evidence generated by research and health policy and practice**, we will make more efforts on knowledge translation aiming to impact and promote health equity and improvement by research and education. These will include engaging policy makers and health practitioners in research, and dissemination of research findings and health information for actions.

Cross-border partnerships stand as another pillar of the program's work. As global health issues go by definition beyond national boundaries and cannot be fully addressed by national governments alone, partnerships are instrumental for maximizing resources, targeting neglected health challenges, and sharing expertise. The Strategic Plan emphasizes collaboration with both traditional partners and new ones. An example from 2023 includes a Memorandum of Understanding with the University of Health Sciences in Phnom Penh, whose first action is a joint research project focusing on social health protection and noncommunicable diseases in Cambodia.

Given the changing nature of global health issues and the shifting priorities on the international stage, the Global Health Program will further strengthen the integration of graduate and undergraduate education, promote the synergy of research and education, and encourage multi- and inter-disciplinary collaborations with broad partners, so as to contribute to the achievement of Healthy China 2023 and health related SDGs worldwide.

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OUR SUPPORTERS

The generosity of our supporters has empowered us to consistently advance and excel in the realms of global health research, education, and practice.

Government

Center for Health Statistics and Information, Ministry of Health of China Development Research Center of the State Council Health Human Resources Development Center, National Health Commission Jiangsu Education Department Kunshan Government Natural Science Foundation of China

International Organization

World Health Organization

Professional Association/Non-profit Organization

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全球健康项目 Global Health Program

Global Health Program, Duke Kunshan University No. 8 Duke Avenue, Kunshan, Jiangsu, China, 215316 Phone: 0512 3665 7240 E-mail: ghrc@dukekunshan.edu.cn Website: www.dukekunshan.cn Linkedin: Global Health Program, Duke Kunshan University Instagram dku_globalhealth