

3.7

IS TECHNOLOGY OR FAILURE OF THE IMAGINATION

the Bigger Challenge for Disease Detection?

BACKGROUND

This session will discuss and debate the potential contribution of emergent technologies (surveillance and diagnostics) to improve/accelerate detection and assessment of familiar and new/uncharacterized risks. Together with participation from the audience, the panels will discuss/debate what is needed to reduce the collective global risk from microbial threats to health.

- *In a world of finite resources, where should we focus our efforts on detection?*
- *How fast can we find emerging infections that threaten the globe?*
- *How fast to do we need to be to stop a potential pandemic?*
- *How can regional disease surveillance networks and one health approaches lead the way?*

MODERATOR

Mark SMOLINSKI

Director
Global Health Threats

*Skoll Global Threats Fund
USA*

OBJECTIVES

- Discuss innovative approaches to disease surveillance using digital data through on line media sources, social networks, and Internet searching.
- Explore the role of point-of-care diagnostics in rapid verification of threats.
- Explore the role of mobile technologies in disease alerts, syndromic surveillance, and direct transmission of observations.
- Discuss how a one health approach could lead to earlier detection.

PANEL ONE

- **John Brownstein**, Co-founder and Director of HealthMap, Harvard University, USA
- **Channe Suy**, Director, Cambodia's iLab, InSTEDD, Cambodia
- **Eron Karimuribo**, Associate Professor, Sokoine University of Agriculture and Southern African Centre for Infectious Disease Surveillance, Tanzania
- **Carl E. Koppeschaar**, Editor / Creative Director, Science in Action, Netherlands
- **Juan Lubroth**, Chief Veterinary Officer, FAO, Italy
- **Patipat Susumpow**, Co-Founder, Opendream Co., Ltd., Thailand
- **Karl Brown**, Associate Director of Applied Technology, The Rockefeller Foundation, USA

PANEL TWO

- **Dennis M. Israelski**, President and CEO, InSTEDD, USA
- **Dionisio Jose Herrera Guibert**, Director, TEPHINET, USA
- **Ann Marie Kimball**, Senior Program Officer, Epidemiology and Surveillance, Bill and Melinda Gates Foundation, USA
- **Peter Daszak**, President, EcoHealth Alliance, USA
- **Larry Madoff**, Editor, ProMED-mail, USA
- **Rosanna Peeling**, Professor & Chair, Diagnostic Research, London School of Hygiene and Tropical Medicine, United Kingdom
- **Stephen S. Morse**, Professor of Epidemiology, Columbia University & EPT/PREDICT, USA



Karl Brown joined the Rockefeller Foundation in 2006. As Associate Director of Applied Technology, Brown is focused on the application of information technology to the programmatic work of the foundation. He is working on exploring and nurturing imaginative uses of technology by Rockefeller grantees, and improving collaboration and knowledge management within the Foundation.

Prior to joining the Rockefeller Foundation, Brown worked as the Chief Technical Officer of GNVC, an NGO that fostered entrepreneurship in Ghana. Previously, Brown was a technical team lead with Trilogy, where he developed and deployed enterprise systems and consumer-facing websites for Fortune 500 companies such as Ford and Nissan.

Brown received a Bachelor of Science in Computer Science from Stanford University and a Master of International Affairs from Columbia's School of International and Public Affairs.

KARL BROWN

Associate Director of
Applied Technology

*The Rockefeller
Foundation
USA*



John Brownstein, Ph.D. is an Associate Professor at Harvard Medical School and directs the Computational Epidemiology Group at the Children's Hospital Informatics Program in Boston. He was trained as an epidemiologist at Yale University.

Overall, his research agenda aims to have translation impact on the surveillance, control and prevention of disease. He has been at the forefront of the development and application of public health surveillance including HealthMap.org, an internet-based global infectious disease intelligence system. The system is in use by over a million people a year including the CDC, WHO, DHS, DOD, HHS, and EU, and has been recognized by the National Library of Congress and the Smithsonian. Dr. Brownstein has advised the World Health Organization, Institute of Medicine, the US Department of Health and Human Services, and the White House on real-time public health surveillance. He plays a leading role in a number of international committees including Board Member of the International Society for Disease Surveillance.

He recently was awarded the Presidential Early Career Award for Scientists and Engineers, the highest honor bestowed by the United States government to outstanding scientists and engineers. He has authored over sixty peer-reviewed articles on epidemiology and public health. This work has been reported on widely including pieces in the New England Journal of Medicine, Science, Nature, New York Times, The Wall Street Journal, CNN, National Public Radio and the BBC.

JOHN BROWNSTEIN

Co-founder and Director

HealthMap
Harvard University
USA



Dr. Peter Daszak is President of EcoHealth Alliance, a US-based organization which conducts research and outreach programs on global health, conservation and international development. Dr. Daszak's research has been instrumental in identifying and predicting the impact of emerging diseases across the globe. His achievements include identifying the bat origin of SARS, identifying the causes of Nipah and Hendra virus emergence, producing the first ever global emerging disease 'hotspots' map, identifying the first case of a species extinction due to disease, coining the term 'pathogen pollution', and the discovery of the disease chytridiomycosis as the cause global amphibian declines.

Dr Daszak is a member of the Institute of Medicine's Forum on Microbial Threats, and served on the IOM Committee on global surveillance for emerging zoonoses, the NRC committee on the future of veterinary research, the International Standing Advisory Board of the Australian Biosecurity CRC, and he has advised the Director for Medical Preparedness Policy on the White House National Security Staff on global health issues.

Dr Daszak won the 2000 CSIRO medal for collaborative research on the discovery of amphibian chytridiomycosis and is Editor-in-Chief of the journal Ecohealth. He has authored over 150 scientific papers, and his work has been the focus of extensive media coverage, ranging from popular press articles to television appearances.

PETER DASZAK

President

EcoHealth Alliance
USA



Dr. Israelski has over three decades of diverse accomplishments in the domain of Infectious Diseases and Global Health. As an internationally recognized clinician, educator and researcher, his career has been dedicated to ensuring that most at-risk populations have access to high quality, community-based healthcare services. He is currently the President and CEO at Innovative Support to Emergencies, Diseases and Disasters (InSTEDD). Dr. Israelski began his work with InSTEDD in 2007; as Vice President of Programs, he was responsible for-- among other things--overseeing implementation of program strategies related to building integrated early warning and response systems for disease outbreaks in the Mekong Sub Region of South East Asia. As part of the work in South East Asia, InSTEDD established an Innovation Laboratory (iLab) in Phnom Penh, Cambodia, which serves as a regional asset for capacity building and technical innovation in design and development of software for social impact.

At present, Dr. Israelski is also Clinical Professor of Medicine in Infectious Diseases and Geographic Medicine at Stanford University School of Medicine. Previously, he served as the Chief Medical Officer at the Pangaea Global AIDS Foundation where he provided adaptive technical assistance to national programs for HIV/AIDS prevention, care and treatment services in Cambodia, China, Ghana, and Zimbabwe. In addition, he was the Chief of Infectious Diseases at the San Mateo County Medical Center and Health Department in Northern California, United States from 1988 until 2006.

The body of Dr. Israelski's work underscores the value he places on collaborative, multidisciplinary and community based activities. The major theme of his work for past two decades has been on use of innovative technologies -- and the innovative use of technologies-- to strengthen public health systems. Dr. Israelski has an extensive portfolio of past and current research achievements including: antimicrobial treatment trials, pathogenesis of protozoal (e.g., *Trypanosoma cruzi* and *Toxoplasma gondii*) and chronic viral diseases (e.g., HIV, HCV, HBV); STDs; behavioral medicine, health services delivery and public health policy. His current focus is on the use, design and development of technologies for scalable impact in Global Health. There are many active projects at InSTEDD, currently underway worldwide; these in part relate to use of communication technologies to improve global bio-surveillance, HIV care, TB control, malaria detection, crises response in vulnerable populations, cloud based management of point of care diagnostic services and overall strategic interventions for Health System Strengthening.

**DENNIS M.
ISRAELSKI**

President and CEO

InSTEDD
USA



Dr. Dionisio Herrera Guibert is a Doctor of Science with a focus on preventive medicine and public health. He was given his degree after attending the Autonomous University based in Madrid, Spain. He received his master's degree in Applied Epidemiology by the National Schools of Public Health in Madrid, and is a graduate of the Field Epidemiology Training Program (FETP) by the Health Institute Carlos III (ISCIII), Madrid -Spain and the Centers of Disease Control and Prevention (CDC) of Atlanta, GA USA.

Dr Herrera is a board certified specialist in Community and Family Medicine although he began his career as an internal medicine physician in Guinea Bissau in 1989.

During 1990 he was a physician in charge and a coordinator of the Cuban Cooperation Team in Zambia; from 1991 to 1994 he worked in the National Reference Center for Primary Attention in Cuba. During 1993 he also served as a consultant for the Habitat for Humanity group based in Mexico.

From 1994 to 1997 he was a fellow in the Institute Carlos III in Madrid, and from December of 1997 to March of 1999, he worked in the Ministry of Public Health in Cuba. When part of the Ministry he acted as a consultant in the Office of the First deputy Minister of Health, while simultaneously operating as a member of the research team for Primary Attention and Assistant Doctor of Family Medicine.

In 1997 he progressed into the Assistant Director and Coordinator position of the Spain Field Epidemiology Training Programs (FETP) at the ISCIII. He worked as an epidemiologist in the Institute of Public Health of Autonomous Community of Madrid and from 2003 to 2009; he was a member of the Alert Unit for Rapid response of the ISCIII and Academic Director and Coordinator of the Spain FETP.

As of March 2009 he has been incorporated as the Director of the TEPHINET secretariat in Atlanta, a program of the Task Force for global health and is also currently a member of the advisory Board of TEPHINET.

**DIONISIO JOSE
HERRERA GUIBERT**

Director

*TEPHINET
USA*

His main interests lie in public health training, surveillance epidemiology and international health. He has been extensively involved in research and training as a professor of family medicine, preventative medicine and public health at the Universidad Autónoma of Madrid and Universidad Complutense of Madrid.

Throughout his career, Dr. Herrera has published more than 70 papers, submitted more than 150 abstracts for scientific conferences and continually participates in more than 135 outbreak investigation and public health actions.

He functioned as Chairman of the Board of TEPHINET from 2002 to 2006 and has served extensively as a consultant in several Field Epidemiology Training Programs including TEPHINET, WHO, CDC, and the ECDC. He was also a member of the Advisory Committee for the WHO Alert and Rapid response department in 2002.

Dr Herrera is currently a member of the Epidemiologist and Public Health association in Spain and has partaken in the reviews of both national and international journals. He also currently sits as a member of both the boards of SAFETINET as well as EMPHINET.

He has been recognized for his efforts numerous times and most notably received several awards from W B Foege, the CDC and the TEPHINET 2003 Price Foundation Mérieux in Ottawa, Canada.



Eron Karimuribo is an Associate Professor who works with the Faculty of Veterinary Medicine at Sokoine University of Agriculture (SUA) based in Morogoro, Tanzania. He also works with the Southern African Centre for Infectious Disease Surveillance (SACIDS), a southern African consortium of medical and veterinary academic and research institutions involved with infectious diseases of humans and animals.

Eron graduated in 1995 with a veterinary degree from Sokoine University of Agriculture and in 1998 he was awarded an MSc degree of the same university. He pursued studies in veterinary epidemiology at the University of Reading in UK and awarded a PhD in 2002.

Eron began his academic career as an Assistant Lecturer at SUA in 2000 the position he held until 2002 when he was promoted to be a Lecturer at the same university. In 2007, he was awarded the UK-based Rothamsted International African Fellowship which allowed him to work with the Moredun Research Institute (MRI) in Scotland as a visiting Research Fellow. This fellowship provided an opportunity to him to acquire skills in molecular epidemiology. He was promoted to the Senior Lecturer and Associate Professor in 2009 and 2012, respectively.

In 2009, he joined SACIDS as a postdoctoral research fellow working on resource mapping and application of mobile technologies in infectious disease surveillance across human and animal health sectors. These projects were supported by research grants from the Rockefeller Foundation. Eron has been extensively involved in research activities related to investigations of diseases of domestic and wild animals as well as those of humans. His main interests are in inter- and cross-sectoral approaches of disease investigation and interventions such as one health and ecohealth fields, climate change, value chain analytical approaches and use of ICT for development. He has published more 55 articles in peerreviewed international journals.

He is a member of different professional associations and communities including the Tanzania Veterinary Association (TVA), Community Animal Health Network (CAHNET) and Participatory Epidemiology Network for Animal and Public Health (PENAPH). He is an Editor of the TanzaniaVeterinary Journal (TVJ) owned by TVA.

ESRON KARIMURIBO

Associate Professor

*Sokoine University
of Agriculture and
Southern African Centre
for Infectious Disease
Surveillance Tanzania*



Ann Marie Kimball joined the Foundation in October 2011 and focuses on Epidemiology and surveillance of Infectious Disease across the current work of the Foundation. Dr. Kimball served as Professor of Epidemiology and Health Services, Adjunct in Medicine (Infectious Diseases and Informatics) at the University of Washington and Attending Physician STD Clinic, Harborview Medical Center prior to joining the Foundation. She is emerita at this time.

During her tenure at UW Dr. Kimball founded and Directed the APEC Emerging Infections Network, and led research and training programs in Surveillance and Informatics in Peru and Thailand. Her research focus on global trade and emerging infections earned her a Fulbright New Century Scholars award and a Guggenheim Scholars award. She is the author of *Risky Trade: Infectious Diseases in an Era of Global Trade* (Ashgate 2006) which was highly reviewed by NEJM, Emerging Infections and Lancet. She has authored numerous scientific publications, and served on numerous Institute of Medicine panels. Most recently she lead the Rockefeller Foundation evaluation of their global Disease Surveillance Network portfolio. She is a fellow in the American College of Preventive Medicine and member of the National Biosurveillance Advisory group (NBAS) fr the Centers for Disease Control.

A former EIS Officer for the Centers for Disease Control in Atlanta, prior to joining UW she worked and lived in the Yemen Arab Republic, Ivory Coast, and Senegal. She served as Director of National Program Support for PAHO, directing the elaboration and implementation of medium term AIDS plans in member countries throughout Latin America and the Carribbean. She has served as Director of HIV/AIDS for Washington State, and the founding Chair of the National Alliance of State and Territorial AIDS Directors (NASTAD) in the United States.

**ANN MARIE
KIMBALL**

Senior Program Officer
Epidemiology and
Surveillance

*Bill and Melinda Gates
Foundation
USA*



Carl Koppeschaar studied astronomy and physics before dedicating himself to science writing. In 2003 he started www.degrotegriepmeting.nl or the “Great Influenza Survey”. Due to enormous media attention, 38,000 Dutch and Flemish ‘flu-meters’ filled in their health status voluntarily every week.

Today this Dutch language internet survey has grown into www.influenzanet.eu, a European flu survey that already encompasses twelve European countries. Carl is also responsible for the ‘Great Pneumonia Survey’ that has recently launched in The Netherlands, seeking to acquire data on low respiratory infections like pneumonia and acute bronchitis. This website not only attracts patients but is also meant for GPs reporting on cases in their daily practise. At present he is developing a website with mobile phone application that can act as a “disease radar” to monitor all kinds of (infectious) diseases, side-effects of prescribed medication, obesity and work related diseases and stress.

**CARL E.
KOPPESCHAAR**

Editor / Creative Director

*Science in Action
Netherlands*



JUAN LUBROTH

Chief Veterinary Officer
*Food and Agriculture
Organization of the
United Nations
Italy*

Dr Juan Lubroth is the Chief of the Animal Health Service and Chief Veterinary Officer of the Food and Agriculture Organization of the United Nations (FAO). Dr Lubroth previously served for seven years as the senior officer of FAO's Animal Health Service and head of the Infectious Diseases Group/ Emergency Prevention System in charge of worldwide surveillance, capacity building, and progressive control of transboundary animal diseases (2002-2009).

Born and raised in Spain, Dr Lubroth received his bachelor's degree (biology) from Whitman College in Washington State and worked as a wildlife biologist before continuing studies at the University of Georgia, where he earned both a master's degree in medical microbiology and DVM in 1985. After a stint with the Southeastern Cooperative Wildlife Disease Study, Dr Lubroth joined the diagnostic services section of the Foreign Animal Disease Diagnostic Laboratory, Plum Island Animal Disease Center, USDA. In Mexico he served as a technical officer for the Mexico-US Commission for the Prevention of Foot-and-Mouth Disease and other Foreign Animal Diseases, returning for advanced studies in the United States. In 1995, he received both a M Phil (arbovirology) and PhD (epidemiology and public health) from the School of Epidemiology and Public Health at the Yale University, School of Medicine. Dr Lubroth returned to USDA and was posted at the Panatosa Center in Brazil as research epidemiologist before being named head of Diagnostic Services at Plum Island, where among other duties managed the North American Foot-and-Mouth Disease Bank.

In 2002, Dr Lubroth joined the Animal Health Service of FAO. He has worked extensively throughout Latin America, North Africa and the Middle East. He has initiated several major initiatives for the control of transboundary animal diseases in Central Asia, South Asia, southern Africa, and served on the Pan African Programme for the Control of Epizootics Advisory Committee. He was the driving force behind several key cooperative initiatives of FAO with the World Health Organization (WHO) and World Organisation for Animal Health (OIE), including the Global Framework for the Progressive Control of Transboundary Animal Diseases, the Global Early Warning System for major animal diseases including zoonoses (GLEWS), and the establishment of the Crisis Management Centre for Animal Health. As an expert on animal health and infectious disease transmission, Dr Lubroth is often called to assist in bringing animal production and health perspectives to the work of the WHO on issues related to "One Health" zoonoses, biological safety of laboratories, and matters regarding bioterrorism and agroterrorism.

On 1 October 2009, Dr Lubroth was appointed as Chief of the Animal Health Service and Chief Veterinary Officer of FAO, headquartered in Rome, Italy, where he now resides with his wife, Adriana, a journalist, and a coterie of dogs and cats of all sizes.



Larry Madoff, MD. Dr. Madoff is an academic infectious disease physician specializing in the epidemiology of emerging pathogens, bacterial pathogenesis, and international health. He is Professor of Medicine at the University of Massachusetts Medical School and is on the attending staff at University of Massachusetts Memorial Medical Center. Dr. Madoff serves as Director of Epidemiology and Immunization, Deputy State Epidemiologist and Interim Director of the Hinton State Laboratory Institute for the Massachusetts Department of Public Health.

Dr. Madoff has been the Editor of ProMED, the Program for Monitoring Emerging Diseases, since 2002. He is a member of the American Society for Microbiology, the International Society for Infectious Diseases, past President of the U.S. Lancefield Streptococcal Research Society, a Fellow of the Infectious Diseases Society of America and a Fellow of the American College of Physicians. A graduate of Yale College and Tufts Medical School, he performed his Internal Medicine Residency at New York Hospital-Cornell Medical Center and his Infectious Disease Fellowship at the Harvard Medical School-Longwood program.

He is the author of over 100 scientific and medical publications including original research papers, reviews, editorials and book chapters on topics involving infectious diseases and microbiology.

LARRY MADOFF

Editor

ProMED-mail
USA



STEPHEN S. MORSE

Professor of Epidemiology
*Columbia University &
EPT/PREDICT
USA*

Stephen S. Morse, Ph.D., is Professor of Epidemiology at the Mailman School of Public Health of Columbia University (New York), and global co-Director of the PREDICT project (intended to strengthen global capacity for surveillance, identification, and risk assessment of emerging pathogens of human pandemic disease potential, particularly those originating in other animal species) of the USAID Emerging Pandemic Threats (EPT) program. He is also Visiting Professor at the University of California Davis, and an adjunct

faculty member of The Rockefeller University in New York. He was previously founding director of the Columbia University Center for Public Health Preparedness. He returned to Columbia in 2000 after four years in government service as program manager at the Defense Advanced Research Projects Agency (DARPA), where he co-directed the Pathogen Countermeasures Program and subsequently directed the Advanced Diagnostics Program. Before coming to Columbia, he was assistant professor of virology at The Rockefeller University. Prof. Morse is the editor of two books: *Emerging Viruses* (Oxford University Press, 1993; paperback, 1996), which was selected by *American Scientist* for its list of "The Top 100 Science Books of the [20th] Century", and *The Evolutionary Biology of Viruses* (Raven Press, 1994). He was a founding section editor of the CDC journal *Emerging Infectious Diseases*, was an editor-in-chief of the Pasteur Institute's virology journal, and currently serves on several editorial boards. Dr. Morse was chair and principal organizer of the 1989 NIAID-NIH (U.S. National Institutes of Health) Conference on Emerging Viruses, for which he originated the concept of emerging viruses/infections. He was a member of the Institute of Medicine-National Academy of Sciences' (IOM NAS) "Committee on Emerging Microbial Threats to Health", chaired its Task Force on Viruses, and was a contributor to the final report, *Emerging Infections* (1992) (which utilized the framework he had developed for "factors in infectious disease emergence").

He also served on the IOM's "Forum on Microbial Threats" (originally "Forum on Emerging Infections") from its planning stages and inception until 2010. He is a Fellow of the AAAS, the New York Academy of Sciences (and a past chair of its microbiology section), the American Academy of Microbiology, the American College of Epidemiology, and an elected life member of the Council on Foreign Relations. He was the founding chair of ProMED, the nonprofit international Program to Monitor Emerging Diseases, and was one of the originators of ProMED-mail, an international network inaugurated by ProMED in 1994 for outbreak reporting and disease monitoring using the Internet. Dr. Morse received his Ph.D. from the University of Wisconsin, Madison. His research interests include the epidemiology, surveillance and risk assessment of emerging infectious diseases (including pandemic influenza), and global public health capacity.



Dr. Peeling is currently Professor and Chair of Diagnostics Research at the London School of Hygiene and Tropical Medicine (LSHTM). Trained as a medical microbiologist, Dr. Peeling had been the Research Coordinator and Head of Diagnostics Research at the UNICEF/UNDP/World Bank/WHO Special Programme on Research and Training in Tropical Diseases (WHO/TDR) in Geneva, Switzerland, and the Chief of the Canadian National Laboratory for Sexually Transmitted Diseases before assuming her current position.

Her work in WHO/TDR focused on the evaluation of diagnostics to inform policy and procurement decisions. Her concern for the lack of international standards for diagnostic evaluations led to a series of publications in *Nature Microbiology Reviews* on the design and conduct of diagnostic evaluations for malaria, sexually transmitted infections, visceral leishmaniasis, dengue and CD4 assays. Dr Peeling has established an International Diagnostics Centre based at LSHTM to provide a global hub for advocating the value of diagnostics and for fostering innovative research, development and deployment of accessible quality-assured diagnostics to improve global health. She has a strong interest in ethical issues associated with conducting research in developing countries and was appointed Chair of the WHO Research Ethics Review Committee while at WHO.

Dr. Peeling is a member of many international scientific and technical advisory panels and editorial boards. She was the recipient of a YM-YWCA Women of Distinction Award and a 5NR Award for Canadian Leaders of Sustainable Development. Her research was featured in a Discovery Channel documentary on Chlamydia Infection and Infertility, and in *Fighting Syphilis*, a documentary in the highly acclaimed BBC *Kill or Cure* series.

ROSANNA PEELING

Professor & Chair
Diagnostic Research

*London School of Hygiene
and Tropical Medicine
United Kingdom*



Mark has led global efforts toward early detection and rapid response to emerging threats. His work has brought together governments, NGOs, academia, and private industry in partnerships across national borders in Southern Africa, the Middle East, Asia, Russia, and SE Asia.

In 2006, Mark joined the start-up team at Google.org as the director of the Predict and Prevent Initiative. Prior to Google, Mark served as Vice President for Biological Programs at the Nuclear Threat Initiative, a public charity directed by CNN founder Ted Turner and former U.S. Senator Sam Nunn. While at NTI, Mark led the development of a regional disease surveillance system linking Israel, Jordan, and the Palestinian Authority, demonstrating the power of health as a diplomatic tool even in areas of longstanding conflict.

In 2003, the Institute of Medicine of the National Academy of Sciences released a landmark report, the Emergence, Detection, and Response to Microbial Threats to Health for which Mark was the study director. He has also served as an advisor to the World Health Organization, Senior Advisor to the U.S. Surgeon General and Assistant Secretary of Health, and an Epidemic Intelligence Officer at the U.S. Centers for Disease Control and Prevention. Mark was a member of the investigation team that discovered hantavirus in 1993 in Southwestern United States.

A native of Michigan, Mark holds a B.S. from the University of Michigan in Ann Arbor where he also received his M.D. He received his M.P.H. from the University of Arizona. Mark is a trained Internist and board certified in Preventive Medicine and Public Health. WIRED magazine's 2008 Smart List of 15 people the next president should listen to included Mark, a.k.a., the threat detective.

MARK SMOLINSKI

Director
Global Health Threats

Skoll Global Threats Fund
USA



Patipat Susumpow is a social entrepreneur, software developer and data geek. With his degree in computer engineering, he began his career as a software developer, after spend 3 years in his formerly-called “corporate job” with his girlfriend, now wife, he decided to quit and start Opendream to become an IT Social Enterprise to empower social sector through IT tools.

His main interests are in ICT-based personal health care, non-formal education and open source software development. He is extensively involving in implementation of mobile disease surveillance through SMS (Short Message Service) in north-eastern provinces of Thailand in 2009; Development of DoctorMe: Thai’s first personal health care application for iOS and Android; Development of LoveNotYet: Thai’s first sex education game for iOS and Android.

He also working on behavioral data analytics such as Twitter data analysis for disease trends, user’s application browsing history for detecting sickness etc.

Patipat currently served as Co-Founder and Creative Technologist at Opendream Co., Ltd. since 2007.

PATIPAT SUSUMPOW

Co-Founder

*Opendream Co., Ltd.
Thailand*



Channe joined the InSTEDD Innovation Lab in Southeast Asia (iLab SEA) as a Product Manager in August 2008. She leads iLab SEA work with government agencies, international humanitarian organizations and telecommunication companies in South East Asia. In addition, she leads iLab SE Asia, a team of software engineers working on innovative technology solutions for partners in the region.

Channe has extensive experience in system design and development using human centered design approach.

In addition, Channe is a co-founder of ShareVisionTeam - a grassroots volunteer team of Cambodian developers, a co-founder of Snadai - a fair trade social start-up with villager women and a founder of a Khmer-language website Evithy dedicated to science & technology.

She graduated with a Masters Degree in Computer Applications from Bangalore University in India in 2006. In addition, Channe was invited to speak at TEDxPhnomPenh, and gave a presentation titled, "Building the Future Cambodia Starts with Sharing."

CHANNE SUY

Director

*Cambodia's iLab
InSTEDD
Cambodia*

IS TECHNOLOGY OR FAILURE OF THE IMAGINATION

the Bigger Challenge for Disease Detection?

Peter DASZAK

ABSTRACT

The biggest challenge for disease detection is neither failure of the imagination nor failure of technology, but the failure of public health agencies to rapidly adopt new technologies and bring creative ideas into their on-the-ground programs. For example, there is a growing body of knowledge on the process of disease emergence that gives us a predictive capacity to deal with emerging pathogens. We now know that majority of emerging diseases are zoonotic; we know that most emerge due to economic development: land use change, agricultural expansion, international travel and trade, changes to food production etc. We can predict the future trends in these underlying drivers, and future trends in how people make contact with livestock and wildlife (via road building, logging concessions etc.). Yet, despite these advances, public health agencies still adopt a 'sit and wait' policy – mobilizing resources when new diseases emerge, and using emergency powers to deal with them. This is an oversimplification, of course, and there are notable exceptions, e.g. efforts to deal with H5N1 spillovers by increasing farm biosecurity, or predictive modeling of future

Rift Valley fever outbreaks. However, the critical point is that global public health is not yet working proactively enough to deal with emerging disease threats as they begin, or even before.

WHY IS THIS?

I propose that the problem begins with infectious disease and public health research. Here, the focus is probably weighted too much towards expensive molecular biological tools for diagnostics or vaccine production, and ignores the potential gains from research into the underlying process of disease emergence. There has yet to be developed a coordinated research strategy to understand how, for example, land use change leads to the emergence of a novel zoonotic virus, or how human behavior within a network of hunting, agriculture and globalized trade drives pandemic risk. Similarly, there is a lack of imagination and ambition in how Public Health Agencies have adopted the One Health mantra of environment/wildlife-livestock-human connections. How many public health agencies employ or collaborate with

ecologists to analyze where wildlife are making the most contact with people within their country?

HOW COULD A PUBLIC HEALTH AGENCY ADOPT THIS APPROACH?

1. Allocate resources for disease detection and control specifically to the regions with the highest risk of an outbreak or disease emergence (emerging disease 'hotspots'). For example, where new roads are being built into forests, funds could be allocated to clinics not only detect known zoonoses, but to conduct limited pathogen discovery and identify novel pathogens as they first emerge.
2. Work with social scientists that can identify high-risk human-activities within a country and target these populations for intensive syndromic surveillance and attempt to clear up outbreaks of unknown etiology
3. Adopt a true One Health approach involving work with veterinarians to strategically sample wildlife that have a high likelihood of harboring known or future zoonoses, and to collaborate with ecologists to identify when these wildlife populations are undergoing changes to their population dynamics which make them higher risk for novel outbreaks.
4. Identify ways to modify high risk behavior that are culturally acceptable; e.g. finding alternative sources of protein to bushmeat, identifying alternative, low risk places in which to hunt, and supporting efforts to deal with exposure at the farm and slaughterhouses in hotspot countries.
5. Collaborate with agencies that deal with the primary drivers of emerging diseases such as extractive industries, agriculture, finance ministries, etc. to identify alternatives to these activities.

Ultimately emerging infectious are a product of economic and social development and it is neither practical nor ethical to say we should not expand agriculture or develop our land. But here, the failure of imagination is to not look for alternatives. Future public health strategies will need to bring creative minds from a wide diversity of fields to identify ways through which we can continue to develop economically, but reduce our footprint and the risk of future pandemic. This will include identifying novel ways to fund these programs collaboratively among public and private sectors.