



PACIFIC HEALTH SUMMIT
SEATTLE 2007

*Connecting Science and
Policy for a Healthier World*



Pandemics Working Together for an Effective and Equitable Response

A report from the
Pacific Health Summit
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FRED HUTCHINSON
CANCER RESEARCH CENTER
A LIFE OF SCIENCE



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An avian influenza pandemic: How afraid should we be?



"I can guarantee you, there will be chaos." **Margaret Chan**, Director-General of the World Health Organization (WHO), was speaking with the voice of experience about the challenges of coordination and communication during a public health emergency. Having managed the responses to the first avian influenza outbreak in 1997 and the SARS (Severe Acute Respiratory Syndrome) outbreak in Hong Kong as Director of the Hong Kong Department of Health, Dr. Chan understands full well the multiple difficulties that a highly lethal, communicable disease presents.

Dr. Chan was speaking to world leaders in global health gathered in Seattle for the third Pacific Health Summit. The purpose of the annual Summit is to connect top decision-makers in science, policy, industry, medicine, and public health to chart a course toward a healthier future. While this year's Summit theme was pandemics, participants also discussed how to improve health systems for the ultimate goal of keeping people healthy and reducing the human and financial cost of disease. In this respect, the pandemics dilemma became a case study in prevention and preparedness, one that has many lessons for a wide variety of human health challenges.

The sense of urgency at the Summit was palpable. The devastating effects of the 1918 Spanish flu pandemic, as well as more recent global health crises such as the spread of HIV/AIDS and tuberculosis and the SARS outbreak of 2003, were sobering reminders of the potential consequences of a new pandemic. There was little doubt among Summit participants that another global influenza pandemic is likely. The question on everyone's mind was, will we be ready?

The 1918 flu pandemic occurred before the era of widespread global travel and world trade. As **Tachi Yamada**, President of Global Health at the Bill & Melinda Gates Foundation, pointed out, recent models built from data from 1918 suggest that upwards of 62 million people could perish in a 21st century pandemic, with 95 percent of those deaths occurring in the developing world. According to the World Bank, a new pandemic could cost the global economy between \$800 billion and \$2 trillion. An avian flu pandemic would make the difficult issues of resource allocation even more urgent, with the potential to pit the nations and peoples of the developed world against those that lack the infrastructure and other re-



Voices of the Summit

[Our common enemy] is right here, right among us, and within us. That common enemy is disease, disease that affects all of humankind indiscriminately, without regard for race, sex, or geographic location.

– **Andrew von Eschenbach**, U.S. Food and Drug Administration



Can the world afford to leave vast populations vulnerable to the high morbidity and mortality that accompany pandemics?

Margaret Chan, Director-General of the WHO

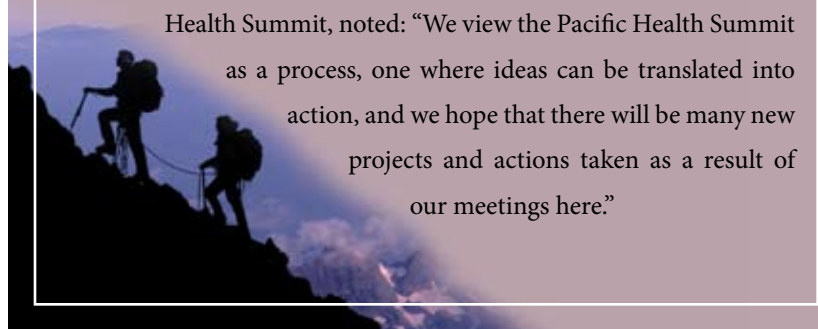
sources to cope effectively. Yet a global pandemic requires a coordinated, global response. As Dr. Chan asked, “Can the world afford to leave vast populations vulnerable to the high morbidity and mortality that accompany pandemics? Is it not in our collective best interest to strive for more equitable protection?”

The consensus was: there is much to fear. The danger of a global pandemic is real, and the tools, knowledge, and resources required to avoid or greatly reduce the threat are complex, expensive, and require effective cooperation at every level of human society—from the smallest village to the halls of international bodies such as the United Nations and the WHO.

Participants argued that we must begin by shifting our assumptions about prevention and preparedness, and by asking tough questions. As **Laurie Garrett**, Senior Fellow for Global Health at the Council on Foreign Relations, noted during the Summit, even if you create an effective avian

The Pacific Health Summit

Every June the Summit welcomes global health leaders to Seattle to discuss how to connect science and policy for a healthier future. This year’s Summit theme was “Pandemics: Working Together for an Effective and Equitable Response.” Participants gathered for two days of discussion and debate focusing on avian flu and other threatening communicable and non-communicable pandemics. Informing the Summit discussion was the underlying desire to develop and encourage appropriate policies for the prevention, early detection, and early treatment of all disease. The yearly meeting is co-partnered by The National Bureau of Asian Research (NBR), Fred Hutchinson Cancer Research Center, and Bill & Melinda Gates Foundation. But the Summit is more than a yearly event. As **Michael Birt**, Director of the NBR Center for Health and Aging and Executive Director of the Pacific Health Summit, noted: “We view the Pacific Health Summit as a process, one where ideas can be translated into action, and we hope that there will be many new projects and actions taken as a result of our meetings here.”



No single country or institution can meet this threat alone...

Unless there is a real sense of engagement and sovereignty on the part of the person who is right there dealing with the first case, either in terms of reporting it or addressing it, you’re going to have things spin out of control before the national or global authorities will be able to weigh in.

– Nils Daulaire, Global Health Council





Leroy Hood, President of the Institute for Systems Biology in Seattle, described his vision of making 21st-century medicine personal, predictive, and preventive during the lively moderated discussion.

Preview Dinner

The night before the official opening of the Summit, **George F. Russell, Jr.**, Chairman Emeritus of the Russell Investment Group and Chairman of The National Bureau of Asian Research, and **William H. Gates, Sr.**, Co-Chair of the Bill & Melinda Gates Foundation, hosted a dinner featuring remarks by former U.S. Senator **Sam Nunn** of Georgia. Russell and Gates are also Co-Chairs of the Summit's Senior Advisory Group. The evening's program was moderated by **Maria Cattai**, who as former Secretary-General of the International Chamber of Commerce and Managing Director of the World Economic Forum in Davos, Switzerland, both engaged dinner guests in a lively discussion and set out key themes for the ensuing two days of meetings.

flu vaccine, how do you successfully immunize people in the poorest and most remote parts of the world if the vaccine requires refrigeration and must be delivered in two injections? How do you supply the required syringes? Without the necessary planning, investments, infrastructure, and communication, human society could still suffer untold consequences, even when an effective vaccine exists.

Joe Hogan, President and CEO of GE Healthcare, observed that during the SARS outbreak, "our x-ray capacity was overwhelmed in two weeks.... I think we know that industry cannot respond to even a medium-sized pandemic from a capacity standpoint." Pharmaceutical industry leaders

from such companies as GlaxoSmithKline (GSK), Merck, Pfizer, and Novartis wondered how they can manufacture enough vaccine in their current or planned facilities, maintain a sustainable business model, and still address concerns about liability. **Jean Stéphenne**, President and General Manager of GSK Biologicals, stressed that a pandemic vaccine developed using a strain from the specific outbreak would most likely take too long (four to six months) to manufacture and be made available after a pandemic is declared. "That's why within the industry we think about a vaccine that can be prepared in advance—a pre-pandemic vaccine."

Representatives of regulatory agencies such as **Andrew von Eschenbach**, Commissioner of



Voices of the Summit

What we desperately need is an entirely new architecture for global health that involves a vast array of institutions that are not now formally involved.

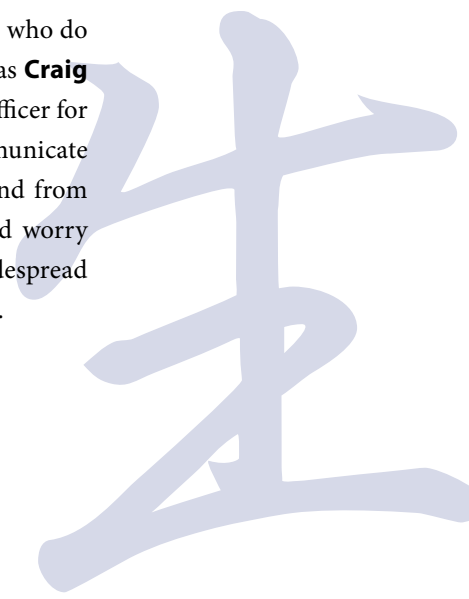
– Laurie Garrett, Council on Foreign Relations



Sally Davies, Laurie Garrett, Ashok Jhunjhunwala, and Maria Cattai (left to right)

the U.S. Food and Drug Administration, worry about rushing a hastily developed and tested vaccine to market in the face of a pandemic and then having numerous serious adverse reactions. Government leaders such as **Zhu Chen**, China's newly appointed Minister of Health, hope to expand international cooperation to include increased surveillance of animal health, since zoonotic viruses are so costly to developing societies. People involved in training and human resources note the worldwide shortage of health workers, especially in the developing world, and question whether there are enough trained workers—let alone enough hospital beds and clinic facilities—to carry out an im-

munization campaign and care for those who do get sick. Finally, IT sector leaders such as **Craig Mundie**, Chief Research and Strategy Officer for Microsoft, question our ability to communicate information both from the top down and from the bottom up in a pandemic crisis and worry that information gaps will lead to widespread confusion and hamper decision-making.



We need a new framework for collaboration...

We need to build the institutional base for sovereignty sharing. Not giving up sovereignty—because then we just get nowhere—but sovereignty sharing. And that requires strong multilateral institutions. It requires allocating resources in a way that takes into account the enormous inequities of the world we live in.

– Julio Frenk, Bill & Melinda Gates Foundation



Reason for optimism: Tangible progress

Many 2007 Summit participants are professionally dedicated to defying the grim prospects of an avian flu disaster. Despite the obvious—and at times overwhelming—obstacles, recent scientific advances have given us new hope. Indeed, science is altering the equation and helping to define a new response. Chief among these advances are new adjuvants and antigens that, when added to H5N1 vaccines, both reduce the dose required to induce immunity as much as fourfold and increase the breadth of protection against genetic drift in the virus. Tachi Yamada of the Gates Foundation described for conference participants why he believes that recent advances in science have “tipped the balance to create a more optimistic view for the future.” He noted that in a crisis situation, a monovalent flu vaccine could triple global manufacturing capacity.

Effective, accessible vaccines

Pharmaceutical companies have been working to develop such vaccines to combat avian flu. GSK Biologicals has effectively doubled its influenza vaccine manufacturing capabilities with new facilities in Canada, and is developing adjuvant systems, in the words of **Ripley Ballou**, Vice President for Clinical Development at GSK, “to enhance the breadth, strength, and the length of the immune response to vaccines.” He added: “Among the expected key benefits of GSK’s adjuvant system for its prepandemic influenza vaccine

Despite the obvious—and at times overwhelming—obstacles, recent scientific advances have given us new hope.

is its ability to reduce the quantity of antigen that is required.” Sanofi pasteur is creating a new vaccine production facility in the United States and is looking to build more robust partnerships in Mexico and China in order to boost vaccine production. Novartis has had vaccine manufacturing facilities in Europe for many years and is currently building a new facility in the United States.



Voices of the Summit

We have the possibility of preventing entirely through vaccination the emergence of a new influenza pandemic. The solution is here. This has been called pre-pandemic vaccination.... Just waiting for the influenza pandemic to start and then trying to rush the process is a strategy I like to call “vaccinating the survivors.”

– Rino Rappuoli, Novartis



Progress in creating adjuvanted vaccines against the H5N1 virus is an encouraging development. The fact that nature has given us a break is another: this form of avian influenza has not been as quick to adapt to a form easily transmittable from human to human as originally feared. So, the question becomes: are our institutions, our public health policies, and our economic in-

Molecular Diagnostics Workshop

Lee Hartwell, President and Director of the Fred Hutchinson Cancer Research Center, hosted a pre-Summit workshop on molecular diagnostics. Dr. Hartwell's call to action was to create a new pipeline for diagnostic testing—different from the typical drug pipeline—that would provide a framework for validating, implementing, and approving diagnostics. Diagnostic tools that help identify disease in its earliest stages are far less expensive to develop than new drugs, and they can improve outcomes and control costs. Participants brainstormed several ways to speed up the diagnostic pipeline and identified some of the challenges that must be addressed.

The discussion focused on resource allocation in the diagnosis and treatment of disease, as well as on engaging different players in the process, such as physicians, payers, patients, and researchers. Participants agreed that bringing the doctor into the molecular diagnostics equation is essential—and a challenge. Physicians must be a part of the feedback loop; otherwise, diagnostics may be performed and may contain valuable information, but the results may not be used to the best effect. One participant pointed to efforts in the United Kingdom, as well as in Korea and Taiwan, to institute pay for performance that encourages the proper use by physicians of diagnostic tools. Other participants raised concerns about intellectual property protection, disincentives (e.g., Medicare not reimbursing for certain tests), and governance issues. Participants also focused on the incentives for different players to be involved and the level of proof that would inspire the most confidence in patient care, with the ultimate goals being cost-effectiveness and improved health outcomes.

A new paradigm of prevention and preparedness...

We don't usually celebrate prevention. We don't have candlelight ceremonies for all the people who have been vaccinated against a disease. It's not the way the world thinks. But here we have a real chance to prevent an enormous catastrophe.... We need to think of our clients, the six billion people in the world. We cannot accept business as usual.

– Michael Merson, Duke University





Yu Wang, Director of the Chinese Center for Disease Control and Prevention

centives adapting to these developments? Will we be able to take full advantage of the progress that science has made on our behalf?

Advancing technology

Accompanying these advances in vaccine science are technologies that will improve preparedness and prevention in the face of a pandemic. Computer software and systems have greatly enhanced disease surveillance capabilities. As **Yu Wang**, Director of the Chinese Center for Disease Control and Prevention, explained, the Chinese CDC's infectious disease reporting system illustrates the advantages of a nationally coordinated, real-time biosurveillance system. Similarly, the Mekong Basin Disease Surveillance Network, a six-nation collaboration to share information on infectious disease, creates a scalable model for cross-border information exchange and joint outbreak investigation and response.

Companies such as GE Healthcare, Fujitsu, and Microsoft are building integrated health information technology systems that will improve response time and effectiveness. These companies are also creating mobile field diagnostic equipment such as x-ray machines and other analytical tests, and adapting them to the environments of developing countries.



Voices of the Summit

Have we learned our lesson? Here we are, in 2007, and new technology is out there but not necessarily getting to the people who need it. We can't just assume that this is going to work itself out. That's an important part of our discussion here.

– Seth Berkley, International AIDS Vaccine Initiative

Biosurveillance: Models of Preparedness and Government Commitment

Summit participants learned about two scalable models of effective biosurveillance at a working lunch that preceded the Summit's opening session. The Mekong Basin Disease Surveillance (MBDS) Network links public health workers in six countries (Cambodia, China, Laos, Myanmar, Thailand, and Vietnam) with regular cross-border information exchange, training, and protocol development. It is a proven model for collaboration and is even being used to create biosurveillance cooperation in the Middle East.

The second model, the China Information System for Disease Control and Prevention, demonstrates unprecedented government commitment to the prevention and early detec-

tion of infectious disease. In the aftermath of the 2003 SARS outbreak, the Chinese Center for Disease Control and Prevention (CDC) and Ministry of Health created a countrywide, real-time disease reporting system that is integrated, effective, and accurate. According to Yu Wang, the system boasts direct reporting points in every single township in the country and is currently the largest such network in the world. This synchronized operation has improved the accuracy of disease reporting, facilitated containment, and resulted in an overall improvement in infectious disease management and public health infrastructure. It is a scalable model for safeguarding public health that can be applied across the globe.

Are our institutions, our public health policies, and our economic incentives adapting to these developments? Will we be able to take full advantage of the progress that science and technology have made on our behalf?



Field workers pushing bicycles in Guilin, China. Technology has facilitated disease reporting in rural areas of the world. Ensuring that effective vaccine technology reaches those areas remains a challenge.

The past should inform the future ...

China learned a great deal from its experience with SARS. Now we have the largest real-time infectious disease reporting system in the world. We learned that each part of society has its role to play: the government must take the lead in prevention control policy; the medical and scientific community needs to provide medical care and research leadership. The international community needs to play its part as well, and this is why we are committed to cooperation with the WHO.

– Depei Liu, Chinese Academy of Medical Sciences



Aligning policy with shifting realities: Are we meeting the challenges?

Human behavior—and influencing it through education, training, and leadership—must be addressed in any effective response to a pandemic crisis.

Sally Davies, Director-General for Research and Development with the UK Department of Health and National Health Service

Summit participants grappled with the challenge of asserting leadership in an atmosphere of rapidly changing science and technology, complex global power structures, competing financial needs and resources, and incredibly high stakes in terms of human health. At the beginning of the Summit, Tachi Yamada posed a set of five critical challenges. First, we must be completely transparent and open to sharing information. Second, we must mobilize and increase capacity for flu vaccine production. Third, we must develop a global stockpile of vaccine that does not overburden the vaccine manufacturers with unrecovered costs. Fourth, we must create a financing facility to help the poorest nations provide vaccines to their citizens. Finally, we must address the issues of surveillance and logistics—in some ways mundane matters, but essential to the successful resolution of a pandemic crisis.

The danger of panic

Human behavior—and influencing it through education, training, and leadership—must be addressed in any effective response to a pandemic crisis. **Sally Davies**, Director-General for Research and Development with the UK Department of Health and National Health Service, articulated her concern that while science may be providing us with new promise for an effective vaccine, bioscience “is only part of the jigsaw” and that psychology and human behavior are also



Voices of the Summit

If you are transparent, but the whole world punishes you economically, do you really want to remain transparent? Information sharing has little to do with access, it has more to do with policy and economic implications.

– Suwit Wibulprasert, Ministry of Public Health, Thailand



Participants questioned how countries would respond to the need for rapid vaccination... given existing widespread shortages of healthcare workers around the world.



Bruce Gellin, Director of the National Vaccine Program Office at the U.S. Department of Health and Human Services

key. She added: “Other elements, such as population behavior and supply chain management, are also critical. An effective response will ultimately require a deep understanding of all of these issues supported by appropriate planning and policy within and between governments and the private sector.” **Suwit Khunkitti**, former Parliamentary Member and Cabinet Minister in Thailand and current Chair of the APEC Life Sciences Innovation Forum, talked about the danger of panic. In a panic situation, he pointed out, people are likely to miss out on critical communication, skip over important information, and make decisions in a vacuum. Laurie Garrett related the avian flu

Virus strain and sequence information-sharing is complex, but critical...

We must make sure that the benefits of sharing these “public” goods—the viruses—are available to all countries. We must in particular find a way to guarantee that all countries benefit from the sharing of viruses by those countries that have human infections. This is the challenge for the WHO, for the pharmaceutical companies, for the developing countries themselves, for us all.

– David Heymann, WHO





Suwit Khunkitti, former Parliamentary Member and Cabinet Minister in Thailand and current Chair of the APEC Life Sciences Innovation Forum; **Robert Kolodner**, National Coordinator for Health Information Technology, U.S. Department of Health and Human Services (left to right)

threat to some of her experiences in studying the HIV/AIDS pandemic and also living near “Ground Zero” in Manhattan during the 9/11 attacks of 2001.

Logistics and equipment

Companies such as GE Healthcare that have developed efficient “just in time” manufacturing and distribution systems recognize that these efficiencies, so sought after as a model of business development, are not conducive to a massive deployment of resources in the face of a rapidly spreading

pandemic. Joe Hogan warned “If an influenza pandemic emerges, the traditional ‘just-in-time’ distribution model will simply be too late.” Whether it’s a shortage of ventilators, syringes, gloves, or other critical items necessary to actualize a mass global response, industry leaders and policymakers need to find solutions to this problem.

Stockpiling vaccines

Cristian Baeza, Acting Director for Health, Nutrition, and Population at the World Bank, raised a critical question early on at the Summit. The stockpiling of vaccines and other medical supplies and equipment that would be needed in the event of a pandemic outbreak presents real opportunity costs. Different countries and populations certainly calculate with different results their willingness to invest in this form of pandemic preparation. An acceptable opportunity cost for the United States will be different from that of a developing nation. Is some kind of balance possible that will recognize and accommodate various levels of risk acceptance and public health investments?

Financing

The 2007 Summit produced calls for innovative financing mechanisms for vaccination. Related to such calls, **Wayne Pisano**, President and CEO of sanofi pasteur, spoke frankly of the challenge of funding a massive global pre-pandemic vaccination program. “The vaccine industry has a



Voices of the Summit

What are the benefits and opportunity costs of investments like stockpiling? This is a question we face almost every day in discussions of Bank lending and financial support for countries. Should we invest in this? What are the risk assessments and investment opportunities and opportunity costs on this?

– Cristian Baeza, World Bank

very strong track record of working with the public sector to provide vaccines at reasonable prices, and we all use tiered pricing.... Each company here has a long history of donating vaccines.... However, we're not able to provide the world with vaccines free of charge." He pointed to the need for external funding from organizations such as the WHO and the World Bank. Margaret Chan acknowledged that innovative financing is needed "to help ensure fair and equitable distribution of pandemic vaccines at affordable prices."

Regina Rabinovich, Director of Infectious Diseases for the Bill & Melinda Gates Foundation's Global Health Program, pointed out that while there are new financing mechanisms for global immunization programs such as GAVI (a purchasing fund for childhood immunizations) as well as advance market commitments for other vaccines, more is needed. She also noted the value of advanced pandemic vaccination, which could cost billions, but would still be much less than the World Bank's estimate of what a global pandemic would cost. Dr. Chan suggested that one possible financing vehicle might be an insurance policy underwritten by the insurance industry.

Product liability, safety, and regulation

Pharmaceutical companies and governments struggle with the issue of imperfection in healthcare delivery systems. **Bruce Gellin**, Director of the National Vaccine Program Of-

An Indonesian Perspective

To date, Indonesia has led all countries in the number of human cases of H5N1 avian influenza, with over 100 confirmed cases and at least 76 deaths. It is the country that has perhaps felt most vulnerable to a possible pandemic. **Triono Soendoro**, Director-General for Indonesia's National Institute of Health Research and Development, shared his perspective as a panelist at the Summit. In December 2006, the Indonesian government stopped supplying its avian influenza virus samples to the international health community through the WHO system. This move was to protest what Indonesia perceived as unfair information-sharing arrangements, wherein virus samples—which were shared at no cost with the global health community—would be used for commercial purposes, for example to obtain intellectual property rights over the genetic sequences. The resulting vaccines and patented technologies would be unaffordable to developing nations. Indonesia's campaign to ensure fair access to pandemic flu vaccines led to a resolution at the World Health Assembly in May that called on the WHO to establish an international working group to change the rules of the system for sharing virus samples and to ensure equitable information-sharing practices so that vaccines would be more accessible to developing nations.

Tea fields in Indonesia

fice at the U.S. Department of Health and Human Services, noted that just before the outset of the Summit meeting, a court trial began in the United States in which parents and other representatives of approximately 5,000 children had entered into a class action suit representing

Where should we invest limited resources?

Diagnostics are absolutely critical at this stage. And it's the early stage that matters, because once the pandemic starts, diagnosis isn't a problem anymore.

– Mark Walport, Wellcome Trust



...the value of advanced pandemic vaccination, which could cost billions, would still be much less than the World Bank's estimate of what a global pandemic would cost.

Regina Rabinovich,
Director of Infectious
Diseases for the Bill &
Melinda Gates Foundation's
Global Health Program



Christopher Murray

Early Health Initiative—Health Metrics

Christopher Murray, Director of the Institute for Health Metrics and Evaluation at the University of Washington, led a breakfast discussion on the importance of measuring outcomes in health spending. He noted that while it would be unthinkable for international corporations to conduct business without broadly accepted standards for accounting and metrics, global health professionals do not enjoy comparable tools. It is extremely important to measure the health gain from public health inputs and preventive medical care, and breakfast participants made a number of comments and suggestions regarding what methods, data, and tools could be used to improve measurement efforts.

about \$15 billion. Their complaint was that thimerosal, an ingredient in a vaccine, precipitated autism in these children. In responding to calls for quickly developed and brought-to-market pre-pandemic influenza vaccines, pharmaceutical companies hope for and expect help from national governments and international organizations that will protect them from similar liability risks. The mechanism for sharing these liability costs is yet to be worked out.

Training and education

May Tsung-Mei Cheng, Host and Executive Editor of Princeton University's International Forum, was one of many Summit participants who questioned how countries would respond to the need for rapid vaccination against avian influenza given current widespread shortages of healthcare workers around the world. But some countries in the developing world have made great strides in increasing access to care, despite

worker shortages. In Thailand, Suwit Khunkitti pointed out, upwards of 800,000 individuals have been trained as village health volunteers. "These volunteers are helping us carry information to the people, and also report the incidence of disease or other problems they're having back to local health authorities." **Ashok Jhunjunwala**, Professor at the Indian Institute of Technology in Chennai, talked about developing educational software games that can help train the population at large not just about pandemic prevention, but also general public health concerns and issues.

Communication and information sharing

Several participants noted that the flow of information in the course of any health care delivery must be multidirectional. Policymakers must have reliable health data; doctors and patients need accurate information regarding individual patients' health, and also must be informed of



Voices of the Summit

A vaccine is part of the solution, it's not the whole solution. I would like to encourage all to bear this in mind so that we don't end up perceiving that if we invest in vaccine stockpiles, the job is done—because it isn't.

– David Nabarro, UN Development Group Office



...educational software games could help train the population not just about pandemic prevention, but also general public health concerns and issues.

health developments—say, the rise of a new infectious disease—in order to provide and receive the best treatment. **Robert Kolodner**, National Coordinator for Health Information Technology at the U.S. Department of Health and Human Services, talked about automating the U.S. healthcare system to facilitate the delivery of high-quality care. The UK National Health Service has already invested billions in developing a national program for health IT and has made a great deal of headway in bringing healthcare online to make it both more efficient and more accessible. Health IT is a priority in Singapore, where paperless hospitals are becoming the norm. In Thailand, a pilot project has developed the beginnings of a national health information

system that can help provide needed information quickly should a pandemic outbreak occur.

Scientists around the world rely on new virus strain information to develop effective vaccines. But, developing countries argue, the sharing of this scientific information must occur in an equitable fashion. Indonesia has been perhaps the most outspoken of the developing countries on this subject. The concern among these countries is that whenever they cooperate by donating virus samples, private corporations gain financially by placing patents on the products and processes they develop with the viruses. Developing countries are then forced to buy the life-saving vaccines with no recognition of their valuable contribution.



Ashok Jhunjhunwala,
Professor at the Indian
Institute of Technology
in Chennai

Vaccines are key components of the solution, but they are not the whole solution...

Availability of product [i.e., virus or vaccine] is not the same as access, and in many ways this is really the central issue we are now dealing with in terms of influenza.

– Keiji Fukuda, WHO



Summit impact

Major global health announcements

On the final day of the Summit, the WHO announced on site that it would create a global stockpile of vaccines for the H5N1 avian influenza virus, in response to a request by the

World Health Assembly in May. Margaret Chan noted that building such an international resource would assist especially the developing nations, which typically do not have sufficient vaccine manufacturing capacity to meet their own needs.

In connection with the WHO's announcement, GSK also an-

nounced at the Summit on the same day that it would donate 50 million doses of its pre-pandemic influenza vaccine to help establish the WHO stockpile. Three other pharmaceutical companies—Baxter International, sanofi pasteur, and Omnivest—also pledged to contribute to the effort. To be delivered over a three-year period, GSK's contribution alone will be enough to vaccinate 25 million people. In addition to the donation, GSK announced that it would provide additional doses of H5N1 adjuvanted vaccine at preferential prices through a tiered pricing business model so that middle and low-income countries can better afford to provide pre-pandemic vaccination.



In a related global health issue, the drug firm Eli Lilly also announced at the Summit an initiative to fight another growing world health problem—rising rates of multi-drug resistant tuberculosis. The “Lilly Not-For-Profit Partnership for TB Early Phase Drug Discovery” is a Seattle-based collaboration between industry, academia, and government to conduct early-phase discovery research on multi-drug resistant TB. Eli Lilly announced its commitment of \$15 million to the partnership over the next five years. The choice of Seattle as a home base for this initiative reflects the strength of the biotech in-



Voices of the Summit

It's not just the health system that matters; it's the delivery of food, it's the transport system, it's our economic system.... That's where the problems will come as the systems interlock, at a national and international level.

– Sally Davies, UK Department of Health and National Health Service



dustry in the Greater Seattle area. Seattle-based organizations involved in this partnership include the Seattle Biomedical Research Institute (SBRI), the Infectious Disease Research Institute (IDRI), and the University of Washington's Department of Global Health.

Ongoing interactions and activities

In addition to the June meeting, the Summit provides an ongoing forum for grappling with problems and solutions, sharing best practices, and forging effective collaborations. The National



Zhu Chen

Approaches to Leadership

A Summit luncheon addressing the subject of leadership featured two world health leaders: Zhu Chen, China's new Minister of Health, and Craig Mundie, Chief Research and Strategy Officer for Microsoft.

Minister Chen noted three attributes that leaders must reflect if they are to respond effectively to an infectious pandemic: a clear vision, a sense of responsibility, and tolerance. A leader's vision must encompass both immediate and distant focal points. A sense of responsibility requires acting with absolute transparency and the highest level of integrity. When leaders exemplify tolerance, they help build a "harmonious society," one that values both unity and diversity. Such tolerance is key as we confront a disease and a potential disaster that knows no national boundaries and impacts every society, every culture, and every corner of the planet.

Mundie noted that while leadership is important, from his perspective, the job of leaders is to harness the energy and intelligence of the people. The Internet is a fabulous tool for doing this, and Mundie demonstrated a new specialized health search service in development at Microsoft, based on its acquisition of Medstory, which delivers high quality and specific medical information to a variety of audiences via the worldwide web. "At the end of the day," he noted in regards to preparing for an influenza pandemic, "it's the population at large that will have to rise to the occasion.... So, the question is, how do we ultimately get the population involved in a steady way?"

Bureau of Asian Research's Center for Health and Aging manages a series of "Health Policy Labs" that focus on particular areas of interest. These Labs become interwoven into the annual Summit agenda and sustain connections and activity throughout the year.

Solutions are multidimensional and touch every aspect of life...

If you are looking at tobacco, the whole issue of trade yielding primacy to public health becomes very clear, but when we are talking about zoonotic diseases, are we also addressing the issue of ecologically viable economic activity patterns? Are we looking at issues like deforestation and commercial scale livestock breeding, which result in a migration of disease-causing vectors into the human habitat?

– K. Srinath Reddy, Public Health Foundation of India



**People will
leave with an
action item....
Things happen.**

David Boyd, Director of
Global Public Affairs at
GE Healthcare

Chinese Healthcare Reform

Participants at a Summit breakfast meeting led by **Jilan Liu**, Special Advisor for the Center for Health and Aging at The National Bureau of Asian Research, examined China's current health system and discussed potential reforms currently under consideration. It was a rare opportunity to learn about a key reform movement as it is unfolding. **Hufeng Wang**, Director of Renmin University's Health Reform and Development Center, and **Min Wang**, Director-General for the Policy Research Department of China's State Council, presented background information and brought participants up to speed on current proposals under review. Zhu Chen also outlined his goals for the future. All agreed that the need for reform is urgent.



Min Wang and Jilan Liu

Participants noted key challenges faced by China as it reforms its healthcare policy. China's population size and diversity; disparities in economic welfare between rural and urban China; insufficient or inconsistent medical education and training; misaligned incentives for primary care and early health activities; and a lack of standards within and among health institutions are all serious obstacles to achieving universal health care.

The Emerging Infections and Pandemics Lab held a conference in Beijing earlier in 2007 in collaboration with the Chinese CDC on pandemic influenza vaccines, which helped to inform and direct much of the Pacific Health Summit agenda for the rest of the year. After the Summit concluded, the NBR Center for Health and Aging created a pandemic influenza vaccines resource page on its public website, which provides international organization, government, and industry resources as well as background reading material. The site will track developments surrounding the WHO stockpile as well as pre-pandemic vaccina-

tion efforts. Additionally, the Health Information Technology and Policy Lab hosted two workshops (in Singapore and Mumbai) over the past year, and has created an evolving library of case studies of health IT adoption across the globe. The Early Health Lab will co-present a "Personal Health" workshop with the China Academy of Chinese Medical Sciences in Beijing in October of 2007.

NBR's Center for Health and Aging also works with other organizations and collaborations to advance medical science and human health in Asia. Managed by the Fred Hutchinson Cancer Research Center, the International



Voices of the Summit

The Pacific Health Summit has since its beginning been a forum for not only discussing challenges and solutions but also for forging projects to work on cooperatively. I hope we can all leave this conference having not only generated some novel ideas, but also having committed ourselves to new collaborations.

– Lee Hartwell, Fred Hutchinson Cancer Research Center



Huaying Zhang

Early Health Initiative— Personal Health

How can we make healthy choices *easy* choices? This was the subject of a working breakfast at the Summit. Led by **Huaying Zhang** of Coca Cola's Beverage Institute for Health & Wellness, participants discussed behavior modification through education and the role of government, industry, and the media in creating a positive environment for healthy lifestyle choices. Participants were asked to “spend” one million dollars each on four top initiatives. The top winner in this exercise, with nearly \$9 million in funding, was for early (ages 3-14) education and intervention,

including improved school beverage and food options and increased emphasis on physical and health education.

Cancer Biomarker Consortium and the Asia Cohort Consortium have both planned meetings and activities for the fall of 2007 to support cooperation in biomarker discovery and research in disease etiology.

Other connections and regular activities have been established by participants of the Pacific Health Summit, developing a separate life of their own. The “Edgewater Club,” named after the Seattle hotel where many Summit participants stay, consists of a group of Japanese leaders who regularly gather in Tokyo. Similar groups have been formed in South Korea and China to advance their work through energetic dialogue and collaboration.

Finally, NBR's Summit website is a constantly evolving tool for community building, interactive discussions, and innovation highlights. At **www.**

pacifichealthsummit.org, viewers can access a wealth of information generated by the three annual Summits and various health labs, as well as innovative developments in global healthcare.



The Summit website features information about Summit discussions and participants, as well as information on resulting initiatives and collaborations.



This [the challenge of a global pandemic] is a chance to bring the world together. This is something that threatens everyone. It's something that can allow us to transcend international boundaries and solve a problem together.

– Joe Hogan, GE Healthcare



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