THE PACIFIC HEALTH SUMMIT
Connecting Science, Innovation, and Policy for a Healthier World
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A LIFE OF SCIENCE
Disease prevention and health promotion: a common responsibility

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Disease prevention and health promotion: a common responsibility

In June 2006, a series of remarkable public health stories made the headlines. The US Food and Drug Administration approved the first-ever vaccine against the human papillomavirus (HPV) — a chief cause of cervical cancer — and the Centers for Disease Control recommended the vaccine for all 11- and 12-year-old girls. On the other side of the globe, Indonesian officials announced another first: in this case, a confirmed case of human-to-human transmission of avian flu. And investor Warren Buffet donated $31 billion of his wealth to the Bill and Melinda Gates Foundation, effectively doubling the group’s resources for fighting diseases in the developing world.

These seemingly unrelated stories are linked: They all underscore the challenges and opportunities that dominated the second annual Pacific Health Summit. Held in Seattle every June, the Summit welcomes 250 of the world’s top-level leaders in science, policy, public health, medicine, and industry to discuss how to build a global health model that will prevent, detect, and treat disease early enough to keep people healthy and dramatically reduce the human and financial cost of disease.

The vision for this transformation in global health traces its origins back to the Summit’s founding sponsors, William H. Gates, Sr., Co-chair of the Bill and Melinda Gates Foundation, and George F. Russell, Jr., Chair of The Russell Family Foundation. Their early leadership has been augmented by support from a broad consortium of leading foundations as well as international organizations from both the public and private sectors. The Pacific Health Summit is co-presented by The National Bureau of Asian Research and the Fred Hutchinson Cancer Research Center.

A key element of the Summit’s founding vision was to make the gathering a platform for innovative and sustained change. During the opening plenary session, Michael Birt, Executive Director of the Summit, reported that the past year has seen extensive collaboration through workgroups, publications, and major scientific initiatives. As Birt noted, the Summit is an ideal venue for a vigorous exchange of ideas and a springboard for policy action.
The excitement and ambition of the Summit was captured by keynote speaker Tadataka Yamada, President of Global Health at the Bill and Melinda Gates Foundation. He gave a heartfelt personal account describing how his childhood in a devastated post-war Japan led to his work at a leading pharmaceutical company. There he helped create a unit devoted to treating diseases in the developing world. When Yamada was asked to take his new position at the Bill and Melinda Gates Foundation, he knew he had the chance of a lifetime to address disparities in health and economic development. As he put it in his address: “1,500 drugs have been developed in the past 30 years, but only 20 have focused on diseases of the developing world. One has to remember that addressing health disparity is the first step in addressing economic disparity. And once we correct economic disparity we can create stability throughout the world.”

Yamada’s challenge to translate words into action was also underscored by the other featured speakers. Leroy Hood, President of the Institute for Systems Biology, described an exciting future in which innovative science and technology would...

Flu vaccines are traditionally produced in fertilized chicken eggs. This process works well and is cost-effective, but it also has disadvantages. Extensive planning (procurement of many eggs and a long timeline) is necessary to prepare for a potential spike in demand.

An Afghan refugee woman holds her baby receiving a polio vaccine in Peshawar. After decades of dormancy, the polio virus is re-emerging in the developing world.
transform the practice of medicine through predictive, preventive, personalized, and participatory medicine. Zuojun Jiang, Vice Minister of Health for China, lauded the collaborative atmosphere of the Summit. “Disease prevention and health promotion are common responsibilities,” he noted. “We must share our experiences and strengthen cooperation to contribute to a new global health model.” And Lee Hartwell, President of the Fred Hutchinson Cancer Research Center and 2001 Nobel Laureate, emphasized the disparity between the money dedicated to treating late-stage illness and funds for prevention-based health — and more broadly, the disconnect between advances in research and bottlenecks in policy. “The U.S. is good at fundamental research and commercialization,” he said. “But we are weak in applied research and implementation. We would be more effective working with other countries that complement our weaknesses.”

The conclusion of the opening plenary made it abundantly clear that Summit 2006 had enthusiastically picked up where Summit 2005 left off.

How do we pay for a healthier future?
Prevention, patient involvement, and early health “metrics”

Despite the Summit’s diversity of political views and policy prescriptions, one common question arose during almost every discussion: how will we pay for the daunting, expensive health challenges that are going to hit all countries over the next 50 years? It has become a demographic certainty that most countries will experience a massive financial crunch as families have fewer children and populations continue to age rapidly. Further compounding worries about the future, chronic diseases resulting from a seismic shift in lifestyle changes will likely become far more prevalent in developing nations, which have neither the infrastructure nor the medicines to tackle them head on. In Asia, for example, it is estimated that diabetes cases may increase by up to 90% over the next 20 years. Robert Rizza, President of the American Diabetes Association, pointed out during a breakout session that the United States could save $325 billion annually if it tackled the obesity epidemic in the early stages, before it brought on diabetes. However, a global effort to shift public policy toward a holistic, preventive health approach — a necessary change to get costs under control — has yet to move from theory to practice.

Participants also cited more technical barriers to feasible funding structures. Even in wealthy countries, they noted, progress has been insufficient in tying pharmaceutical research more closely to the fields of biotechnology and information technology. There was broad co-
A ‘common language’ for health policy

William Clarke, MD, is Executive Vice President and Chief Technology Officer and Medical Officer at GE Healthcare. He spoke with Foreign Policy on one of the signature initiatives to come out of the 2005 Pacific Health Summit, the Early Health Initiative (EHI). It stemmed from an idea of William M. Castell, former President and CEO of GE Healthcare, that decision-makers need metrics to track countries’ progress in adopting preventive health measures.

What was the impetus behind the EHI?
Bill Castell asked how we could expand on the concept of early identification of disease and early intervention, which we named “early health.” We wanted to get a metric by which countries could judge their progress. And we wanted to create a common language for policymakers and resource allocators as well as give them a tool to help guide their discussions and decisions.

One key mission of your workgroup is to agree on the quantitative metrics that will shape this initiative. How much progress has there been on this front?
We have only started to identify some potential metrics. But the more important point is that we have succeeded in alerting policymakers and begun to develop a shared understanding of what dimensions are important to capture in an early health discussion.

In particular, we’ve established four core ideas, which we call the “Four C’s.” First is that health care is a “continuum” that starts with very basic needs, like clean water and good nutrition, and ends with late-stage disease treatment. Second is that the EHI must be adjusted for “context” to acknowledge that each country has different health challenges. Third is “competition;” we need to understand that dollars for preventive healthcare will compete with dollars for late-stage treatment, and we have to allocate accordingly. Finally, the EHI should project “clarity” so that it can be a common tool.

Does that mean the initiative is focused on public health and existing measures of prevention?
Not quite. The WHO already has metrics on public health measures like immunization and early childhood mortality. We are striving for a more complete view of early health that incorporates a range of factors. Our initiative is more complex than a single number index.

Our model currently has several axes, and each contains multiple metrics. Our vision is that the model will be an interactive modeling tool that policymakers can use to understand different resource allocation scenarios.

What’s your most important priority coming out of this Summit?
We hope to get 40 to 50 people to participate in discussions and make this a truly interactive and dynamic exchange. We need broad involvement to make this work. As we develop this initiative and refine the metrics, we will apply existing data and call for the broad-based collection of data for additional meaningful analysis.
in health was noted: many large corporations are implementing preventive-based health plans for their employees. One example is Pfizer, which boasts an 87% participation rate in a program that includes “health coaches,” on-line personalized health information, and reimbursement for costs incurred for preventive choices like quitting smoking. According to Dudley Schleier, Vice President of Pfizer, Inc., “patient involvement is key.” On a broader country level, Finland was cited for its campaign against coronary heart disease. That effort has sliced mortality rates by 63% in 15 years thanks to improved diagnostics, earlier and better treatments, and innovative promotion of lifestyle changes.

But others argued that the biggest obstacle to bringing about an early health revolution may be insurance models. As Princeton economist Uwe Reinhardt put it:

The whole [US] insurance structure is free choice. And we worship high deductibles. Any physician would tell you this is antithetical to early health investment. What you need is lifecycle insurance, where you stay with a carrier your whole life. It pays the carrier to invest early in order to save money in the long run.

‘We should listen to patients more’

Lord Nigel Crisp is Advisor to UK Prime Minister Tony Blair and head of the Review of Health in the Developing World. He was Chief Executive of England’s National Health Service (NHS) from 2000 to 2006.

What would you say was your greatest achievement during your tenure at the NHS?

Early in my tenure, all our priorities focused on the quality and standards of health services: reducing the length of time it took to get treatment, improving outcomes in cancer and coronary heart disease, and educating and recruiting more specialists. As these things started to really improve, we could turn our attention to promoting health, making earlier diagnosis and preventing disease — in other words, moving from a “late disease” model of healthcare to an “early health” one.

One message for other countries is that you must first deal with the big service problems—where all the political and public interest is—before you can move on to a more preventive strategy. You have to deal with issues that the public cares about, like hospital waiting lists, before addressing early health.

What would an early health strategy look like?

It will actually largely come from patients and the public; we should listen to them more. They understand health and would rather be healthy. Just look at how much people spend on health, exercise, diet, tonics and so on. And we know from our analysis that involving people more in their own health-care and decision-making not only improves quality but lowers costs. Having patients “fully engaged” will mean that costs will be one percentage point of GDP lower than they would be otherwise.

We must involve people and support them with education, health trainers if they want them, and information and advice. We must also get the right incentives for doctors and providers.

You’re now advising the prime minister on how the UK can tailor its aid programs to support health in the developing world. Tell me about that effort.

There has been great work done—on vaccines, for example—but it tends to be disease-specific. We intend to look to longer-term needs like improving training for workers and making that training sustainable and develop pilot programs in two or three countries. My conversations with policymakers in different countries have reinforced the importance of human resources and particularly the education of health professionals.
Christopher Elias, President of PATH, opened the plenary session on pandemics with a memorial to the late Jong-Wook Lee, former Director-General of the World Health Organization and a participant at the inaugural Pacific Health Summit. Elias urged participants to realize Dr. Lee’s vision of pandemic preparedness plans for every nation, reminding attendees that pandemic diseases “threaten us jointly, cutting across ages, cultures, and sectors. We all have an incentive to join together.” Elias added that we are not powerless in facing this threat; in fact, regional collaborations in Asia established in recent years and new infrastructure already offer a positive foundation for future cooperative efforts against pandemic flu.

While the threat of an avian flu pandemic continues to loom large, David Nabarro, United Nations System Influenza Coordinator, also pointed to several examples in which active government involvement can successfully stave off disease. During the last seven months, the Vietnamese government has mobilized community groups and volunteers, vigorously vaccinated poultry, and instituted widespread public communication campaigns. Despite the common perception that developing countries cannot manage major health challenges, he said, “these countries are examples
of extraordinary successes.” But Nabarro added that other developing countries with weaker political systems and poor infrastructure still lack the means to combat the pandemic challenge.

Foreign Policy Editor Moisés Naim made another key point: scientific and public health communities continue to be unprepared for the new speed and form that the trajectory of infectious diseases can take. Referring to the 2003 SARS scare, he pointed out: “Who would have said that a public health accident in a small town in China would close down the city of Toronto?” Indeed, no one at the Summit took the potential of an avian flu pandemic lightly. Although fewer than 150 humans have died to date, the mortality rate of the H5N1 virus exceeds 50%. Since

### Merging lessons from East and West

**Dr. Hongxin Cao** is President of the China Academy of Chinese Medical Sciences in Beijing, the country’s leading institute dedicated to research on Traditional Chinese Medicine (TCM). China legally recognizes both TCM and Western medicine for medical services. Dr. Huaying Zhang, Director of Health and Wellness for Asia at Coca-Cola’s Beverage Institute for Health and Wellness in Beijing, translated this interview when Dr. Cao spoke with Foreign Policy magazine.

One interesting point made at the Summit is that China has integrated TCM into its campaigns against SARS and avian flu. What are some examples of this approach when it’s taken out to the field? How much can be applied to Western countries hit by avian flu? When SARS first broke out, there was not much international understanding on how TCM could help control SARS. So after the WHO noticed that TCM was playing a role in prevention and early detection in China, they worked with the Academy and helped organize clinical studies to determine how TCM affected the progression of the disease, and they saw impressive results. Now, the Academy is working on using TCM in the campaign against the avian flu. The other important change after SARS was that the government revived its infectious disease laws that emphasize the use of TCM in controlling pandemics. So now, TCM is fully part of the strategy.

And how does TCM work in terms of treatment or controlling the virus’ spread? TCM uses herbal remedies designed to combat viruses on two fronts, by fighting the virus itself and by making the immune system stronger. However, one needs to keep in mind that the formula will always have to be revisited, because the avian flu virus always mutates. There also needs to be a range of diverse remedies rather than one single formula, like Tamiflu. We need this range because the immune systems of humans and poultry vary so greatly.

Apart from infectious disease detection and prevention, what other benefits can TCM offer that many in the West might not be aware of? TCM can provide a platform for personalized and preventive medicine in Western countries. Chinese medicine fully recognizes the dimension of constant change in disease processes, and it matches those changes with continuous adjustments to individualized treatment regimens.

Working together complementarily, we may be able to develop a new area of medicine using the respective advantages of each to offset the other’s shortcomings.

In China and Western countries alike, a great deal of progress has been made in developing effective disease treatment schemes by using Chinese and Western medicine synergistically. For example, an integrated approach has revealed that several Chinese medicines can strengthen the bodies of cancer patients and help them deal with aggressive chemotherapy or radiotherapy treatments. Other TCM methods, such as acupuncture, have also made many leaps and bounds in reducing pain and suffering in the West and East.
humans lack immunity, estimates of worst-case impact have topped 150 million human deaths and a 13% drop in global GDP. Participants also pointed out that AIDS offered a telling illustration of just how devastating the lack of preparedness can be, especially in the developing world.

But some participants made another point: while SARS had a massively destructive economic impact, Asian countries took valuable lessons from the experience to apply to their ongoing campaign against the avian flu. The experience made clear the need for more efficient platforms and more integration between different fields, according to Depei Liu, President of the Chinese Academy of Medical Sciences. In the aftermath of the SARS experience, China established cutting-edge, widespread disease tracking and reporting systems throughout the country.

Liu said thousands of people use these systems daily, and that public health officials analyze the collected data. He and other Chinese participants also underscored that the integration of Traditional Chinese Medicine into modern techniques has played a role in the early detection and diagnosis of outbreaks before they spread.

In the case of avian flu, panelists noted it is often the simplest measures, such as basic public hygiene, that can be the most effective. Ian Shugart, Senior Assistant Deputy Minister of Health Canada, pointed out that “the single biggest defense [against bird flu] is basic elements of public hygiene: hand-washing, safely handling poultry, reporting suspicious deaths of birds, telling employees when to stay home. All these are relatively easy interventions, but people have to be trained to put them into practice.”

Can information technology reshape global health?

Empowering patients through knowledge and connectivity

Few would dispute the notion that information technology has advanced leaps and bounds beyond what anyone imagined just 15 years ago. But such rapid change and success also carries unexpected challenges. At the intersection between genomics and cancer research, for example, scientists are starting to sequence cancer genes, and hundreds of cancer genome projects are already underway. Yet the broader scientific community has not yet found a way to connect silos of data and collaborate more broadly across the country and globe. Anna Barker, Deputy Director of the National Cancer Institute (NCI), summarized the problem: “There’s an explosion of data that we have no clue how to manage. Once cancer information becomes digital, everyone from all the sciences can work on it. But we first have to learn how to exchange data on an international basis.”

Can case studies point to useful lessons on how to leverage advances in technology to create a healthier world? One example might be Singapore, which has successfully incorporated information technology into its health system...
at the local and national levels, getting policymakers, physicians, and patients alike on board. **K. Satku**, Director of Medical Services for Singapore's Ministry of Health, described how his government has created an electronic medical exchange that uses Web-based services to move documents and data among clusters so that doctors can access a lifetime of data for any given patient. Such a feat is easier in a country of 4.5 million where everyone is covered by a single-payer healthcare plan, but Satku and others agreed that Singapore still could offer valuable lessons beyond its borders.

Other participants pointed out that developing countries are also tapping into the IT revolution. The explosion in the popularity of cell phones in the developing world has opened up a new way to transmit health data and use information technology to bring healthcare, virtually, to remote villages. During a working lunch, **Craig Mundie**, Chief Research and Strategy Officer at Microsoft, described his vision for the future of information technology in personal health management. One of his most compelling scenarios: a woman in India using a cell phone to acquire information on her baby's illness. The data from her cell phone would then instruct the mother to go to a nearby unmanned clinic with equipment that could take blood samples, determine the baby's sickness by molecular analysis, and then connect the mother via remote access to a personalized diagnosis and treatment suggestions.

IT lets consumers “take control of their own health,” said **Patricia Perry**, Vice President of Digital Health for Intel. IT has the potential to drastically lower the cost of care by reducing long emergency room waits and unnecessary hospitalization, she added, but cutting cost is only possible if people become more motivated to use the tools increasingly available to prevent, detect, and treat disease early.

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**Anna Barker, K. Satku, and Patricia Perry.**

**Vaccines have a storied history of wiping out some of humankind's most devastating diseases. A classic form of a prevention-based health policy, they are usually cheap and an ideal means to combat common illnesses in developing countries. Yet their potential remains profoundly underdeveloped.** **Robert Steffen**, Director of the Institute for Social and Preventive Medicine at **How can we tap into the full potential of vaccines?**

**Mixed success, but signs of hope**

Vaccines have a storied history of wiping out some of humankind's most devastating diseases. A classic form of a prevention-based health policy, they are usually cheap and an ideal means to combat common illnesses in developing countries. Yet their potential remains profoundly underdeveloped. **Robert Steffen**, Director of the Institute for Social and Preventive Medicine at
the University of Zurich Travel Clinic, opened up one panel with some telling numbers: vaccines save three million lives annually worldwide, but only 12 out of the currently available 26 vaccines are broadly available. Additionally, governments spend, on average, only 1.5% of their total pharmaceutical budget on vaccine development, “because there’s this belief that we’re spending on unimportant diseases,” said Steffen.

Even if the vaccines themselves are relatively cheap, however, the cost of delivering and administering them can be prohibitively high in some areas. According to Yu Wang, Director of the Chinese Center for Disease Control and Prevention, Hepatitis B and polio vaccines are in common use in China, but making sure that the vaccines reach remote regions and retain their efficacy can be a challenge. The Hepatitis B vaccine, for example, requires cold transport and several doses over a series of months. Keeping vaccines fresh and getting people to return to clinics to complete their vaccination can be very difficult. “We may need to consider a higher-cost Hep B vaccine that is easier to deliver and administer,” Wang concluded.

In response to the question of whether policy is catching up with science, three experts on the vaccines panel outlined progress in vaccine development for AIDS, malaria, and HPV. Regarding AIDS, Lawrence Corey, Head of the Infectious Diseases Program at the Fred Hutchinson Cancer Research Center, pointed out that science is still further along than policy: governments are not backing up vaccine development and coordinating with one another as much as they could, regardless of progress on the clinical front. In particular, Corey cited plans for human clinical trials in South Africa and Thailand, but he warned that a vaccine was still “years away — there’s still very little interest among the big pharmaceuticals.”

Regina Rabinovich, Director of the Infectious Diseases Division at the Bill and Melinda Gates Foundation, saw only mixed progress toward a vaccine against malaria, which kills between one and two million people each year. But she cited several trials underway, including one in Mozam-
bique that has posted a 60% prevention rate in young children. And NCI’s Anna Barker described the potential of the HPV vaccine, which could prevent 233,000 cervical cancer deaths a year.

All agreed that a significant hurdle remained beyond the scientific challenge: making sure that vaccines reach those who need them the most. As Rabinovich put it, “We have to convince regulatory agencies and health ministers to make the right decisions. We need a large global alliance to introduce vaccines worldwide.”

The Summit’s call to action

Expanding the frontiers of collaboration

Building on the workgroups, publications, and activities that grew out of Summit 2005, the “Call to Action” on the last day of Summit 2006 produced enthusiastic proposals for new projects as well as renewed support for ongoing work.

Key initiatives borne out of Summit 2005 include the Early Health Initiative and the International Cancer Biomarkers Consortium (ICBC), a large-scale effort similar to the Human Genome Project. The ICBC aims to make significant progress in the discovery of biomarkers by facilitating highly coordinated research and leveraging resources and expertise from around the world to overcome the current obstacles in biomarker research. Coordinated by Lee Hartwell, the ICBC has 11 international teams with 156 members in all who will meet for the second time in Singapore in December 2006. Another project is the Asia Population Cohort Study, an international collaboration led by John Potter, the director of Public Health Studies at the Fred Hutchinson Cancer Research Center. The Study aims to understand how environmental factors such as diet, smoking, and exercise affect disease development, and how this risk varies with genetic make-up.

Ongoing initiatives include the East Meets West and Emerging Infections/Pandemics Workgroups, both of which produced launch publications currently being distributed around the world. In addition, the Health Information Technology and Policy (HIT) Workgroup met in Washington, D.C., in January and in Tokyo in April, welcoming 50 participants from seven economies to engage in discussion on health technology issues and collaborate on solutions. The HIT Workgroup also produced a “Briefing Book” of key issues and case studies of the challenges and successes of HIT adoption around the globe, authored by Workgroup members involved first-hand in the implementation of HIT systems in their own countries.

Building on the achievements and progress of the past year, the Early Health Initiative is a prominent agenda item for the upcoming September Asia Pacific Economic Cooperation (APEC) Life Sciences Innovation Forum meeting in Vietnam. The HIT Workgroup is planning a third meeting for fall 2006 in Singapore, with the goal of translating discussions into policy recommendations for Summit 2007. Similarly, the East Meets West Workgroup will carry this June’s dialogue to Beijing in April 2007 at a meeting sponsored by the
Academy of Chinese Medical Sciences.

The National Bureau of Asian Research manages these Workgroups through a secure, collaborative SharePoint Portal™ that facilitates real-time discussion about current issues and events, collaboration on documents, participation in surveys, and other policy-relevant work throughout the year. The portal has made the Summit a true collaborative process rather than simply a yearly event.

Meanwhile, at the 2006 Call to Action, Logan Rae, Director of Healthcare Environment at GlaxoSmithKline, proposed a new Vaccines Workgroup, and a key official from China’s National Development and Reform Council committed the NDRC to collaborate on a health promotion pilot project. David Lawrence, Former Chairman and CEO of the Kaiser Foundation Health Plan, proposed a “Translation” project that would draw together different issues of the Summit and examine how advances in science and medicine become active policy.

Finally, the Pacific Health Fellows Program is confirmed for 2007. This mentorship program provides early career science and healthcare professionals with an opportunity to work inside leading organizations, receive valuable mentoring from top professionals, and apply skills and experience toward the treatment of a major policy issue related to the transformation of global health.

The energy in the room on the last day of the Summit reflected the collaborative atmosphere of the entire process. Participants agreed to work together during coming months and report back on their progress next year. Inspiring them was the Summit’s vision that had been eloquently summed up in Yamada’s address at the opening session: “Now is the time. We have the tools, the interest, the excitement, the money, and the hubris to believe we can do something. If we join together in an organized way to address problems that must be addressed, we could make the world a safer place.”
The Pacific Health Summit would like to thank our co-founding organizations for their generous support.

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