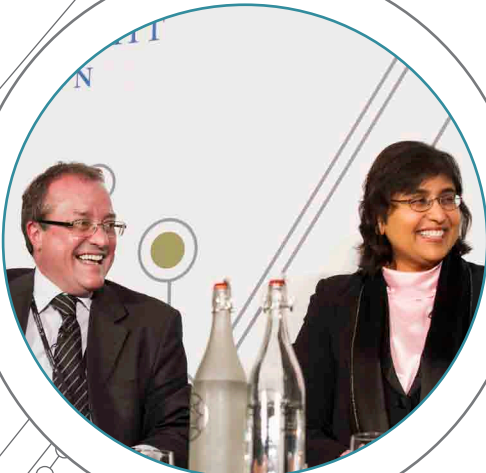




PACIFIC HEALTH SUMMIT
SEATTLE - LONDON

Connecting science, industry, and policy for a healthier world



Game Changers

Affordability and Technologies for Health

A report from the Pacific Health Summit
London | June 12 - 14, 2012





Summit reception

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Participants networking at the 2012 Pacific Health Summit

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The background of the page is a complex, abstract pattern of thin, colored lines in shades of blue, green, and orange. These lines meander and branch out, resembling a circuit board or a network diagram. A large, light beige circle is centered on the page, containing the text. The lines often end in small, solid circles of the same color, giving the impression of nodes or data points.

About the Summit

The Pacific Health Summit launched in 2005 with the goal of connecting science, industry, and policy to foster substantive cross-sector communication and collaboration between the world's leaders in global health. The Summit is widely recognized as a landmark event on the global health calendar and offers an unparalleled opportunity to engage high-level and diverse stakeholders around specific themes. Having addressed diverse topics such as vaccines, maternal and newborn health, MDR-TB, malnutrition, and pandemic influenza, the Summit has a track record of catalyzing innovative and meaningful action. The Summit alternates between Seattle and London and is co-presented by the Fred Hutchinson Cancer Research Center, the Bill & Melinda Gates Foundation, Wellcome Trust, and The National Bureau of Asian Research (NBR), which serves as the Secretariat.

Fueling Better Health through Strategic Innovation

The Science of Simplicity

☉—“**FOR THE HEALTH NEEDS OF TODAY**, much of the answer lies in innovation. However, not all innovation needs rocket science,” stated **Margaret Chan**, Director-General, World Health Organization (WHO), at the opening session of the 2012 Pacific Health Summit. “Given the world’s most pressing health problems, the true genius of innovation these days resides in simplicity.”

Addressing the theme of “Game Changers: Affordability and Technologies for Health,” Chan offered a candid, forward-looking assessment of how low-tech, appropriate, and affordable innovations could end preventable deaths. “The quest for simplicity and ease-of-use is not a natural one...but we’ve hit a brick wall, and now even the richest countries cannot afford to widely implement the newest innovations.”

Exploring the spectrum of technologies that are, can, and will be game changers for global health, Summit discussions focused on how we can get these innovations to the right place and the right people, at the right price.

In addition to life-saving advances such as vaccines, Chan urged participants to not overlook a simple tool: a paper checklist for safe childbirth. In an initial study in India, this checklist improved acceptable clinical practices by 150%. Another product, the Odon device, was designed by a car mechanic in Argentina. This disposable plastic sheath slips over a baby’s head during childbirth, allowing

Summit Focus 2012

Technology can mean many different things to different people, and affordability and price are not synonyms. Acknowledging that defining these concepts can depend on economic, cultural, and geographical contexts, Summit discussions sought to identify how to strike a balance between affordability, accessibility, and price. Summit participants were challenged to take a broader view of the life-cycle value, accessibility, and appropriateness of a wide range of technologies, such as devices, diagnostics, drugs, vaccines, information and communications technology (ICT), and mHealth, as well as innovations in operational and delivery processes, particularly for low-resource settings.



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The design and development of many technologies have all emanated from an era in which benefit without concern for cost were the underlying drivers for these discoveries. We now enter an era of healthcare research where cost-effectiveness is an important component of the discussion, even at the conceptualization stage.

- Lawrence Corey, President & Director, Fred Hutchinson Cancer Research Center

the birth attendant to pull the newborn out safely. The sheath represents the first new assisted-delivery device since vacuum suction and forceps were introduced.

Chan shared her personal insights with 250 global health leaders from policy, government, industry, science, and the global health community, challenging them to forge creative collaborations and partnerships that better respond to critical global health challenges amid increasing global financial

austerity. Outlining the resource constraints and health worker shortages that demand low-cost and easy-to-use products, Chan articulated the urgent need to strongly emphasize strategic innovation to transform health outcomes worldwide. “These tools are simple and frugal,” said Chan. “They can be game-changers and continue to fuel and sustain the unprecedented momentum for better health.”

Moving from Abstract to Impact

Innovation and technology can only change the game with the stewardship and leadership of results-driven individuals. That is where the Summit seeks to have greatest impact.

“The future prosperity of all our countries is at risk, and affordable innovation is a solution that should motivate us all,” said **Peter Singer**, CEO, Grand Challenges Canada and Director, Sandra Rotman Centre, University Health Network and University of Toronto. He proposed a Grand Challenge using grants and prizes to stimulate the exchange of ideas on affordability between North and South. “Let’s define affordability as equivalent quality but at less than 50% cost and at scale,” he said.

Summit alumni have often referred to the meeting as an incubator for out-of-the-box problem-solving with tangible results. New introductions among

delegates and impromptu conversations often grow into collaborative ideas that lead to creative partnerships.

A discussion on the challenges of health technology assessments prompted a call for action from **Anita Goel**, Chairman & CEO, Nanobiosym. She advocated for a global innovation fund that would focus on expediting promising technologies through the pipeline, including the different stages of implementation, incubation, and feedback.

In the weeks following the 2012 gathering, delegates reported back with an account of the important connections they made and that have begun to bear fruit. World Vision and DSM have entered into collaboration with Myanmar’s Ministry of Health to study how an innovative, fortified nutritional supplement, NutriRice, might be implemented in the context of small-scale

rice millers. The project will enhance, via affordable technologies, the nutritional status of children, adolescent girls, and pregnant and lactating mothers.

Absolute Return for Kids (ARK) is exploring opportunities with Neuro-synaptic Communications Pvt. Ltd., an India-based ICT company, to utilize its telemedicine kit for in-service training of healthcare workers. ARK also had conversations with GE Healthcare, leading to prospects for employing GE’s mobile ultrasound device in ARK’s maternal and child health programs. **Jason Hwang**, Executive Director of Healthcare, Innosight Institute Inc., and **Kanav Kahol**, Head of Affordable Health Technologies, Public Health Foundation of India also found shared interests around surgeon-training techniques that utilize video-gaming technologies, and they are exploring potential collaboration



Stringing Together Pearls amid a Paradigm Shift

Innovation is fusing previously unconnected fields in health. It also represents a powerful and “disruptive” force for improving health outcomes. This year, the Summit theme placed the spotlight on channeling innovation and rapidly emerging technologies, not only to save lives, but to also address the steeply rising associated costs that are undermining public health systems in both developed and developing countries.

The global health arena is one of competing priorities. Why focus our efforts on technology innovation and affordability? Why now?

“We are seeing a revolution in healthcare enabled by new technology,” answered **Mark Walport**, Director, Wellcome Trust. “The power of informatics and engineering, combined with new biological understanding of the mechanisms of health and disease, has the power to transform lives. The challenge is to harness this revolution to provide affordable solutions for the global population.

to examine if the affordable technologies being developed by the Public Health Foundation of India could have an impact on healthcare in the United States.

Additional partnerships have and are developing through the annual “Calls for Collaboration,” a hallmark of the Summit’s commitment to facilitate viable outcomes. This mechanism guides leaders toward concrete engagement through creative, multi-sector partnerships that reach beyond financial donations. The 2012 Summit featured six Calls for Collaboration, including a request to support the roll-out and localization of a smartphone-based ultrasound device. Another call sought partnership to help identify practical approaches and systems to facilitate payments between citizens, providers, and insurance funds for national insurance programs.

In addition to the Calls for Col-

laboration, informal Summit discussions led to valuable connections. A growing diagnostics company and a hedge fund manager are exploring opportunities to scale up an innovative diagnostics platform for use in developing countries. Building on the example of the African telecommunications revolution cited in the Summit discussion, CEOs of three prominent companies headquartered in three African countries are now partnering to develop an electronic micro-insurance scheme for healthcare in Africa.

“That’s the sort of action these conversations can spawn,” said Peter Singer, recounting a 2010 Summit meeting with **Cesar Victora**, Visiting Professor, Department of International Health, Bloomberg School of Public Health, Johns Hopkins University. Given the chance, Victora explained to Singer, he would focus

on trials undertaken ten years ago to discover which interventions can positively influence early child development and protect the brains of children. Two years later at the 2012 Summit, Singer announced the outcome of that random meeting: “We are about to announce \$10 million worth in projects to unlock the cognitive potential of children growing up in developing countries.”

“It’s exciting to see what can emerge when a group of driven leaders comes together for the first time,” reflected **Claire Topal**, the Summit’s Managing Director. “Our experience is more productive when the conversation becomes a little uncomfortable, when our worldviews are challenged. That is when things happen. Sometimes the most unlikely of partners helps us create the outcomes to which we aspire.”



There is a clear plea for simplicity. This meeting is above all about pragmatic innovation, how to make innovation that really works to help us achieve the higher goals that we all want.

- Philip Campbell, Editor-in-Chief, *Nature*

This can only be achieved through partnership and collaboration, between academia and industry, and between the private and public sectors.”

Summit delegates acknowledged that the challenges are great, but agreed that the opportunities are greater.

“We could put a roadmap together with the stakeholders in this room; we have all the parts of the solution here,” said **Anita Goel**, Chairman & CEO, Nanobiosym. “They are like pearls, and all we need to do is to string them together.”

Who and What Is Changing the Game: A View from the Next Frontier

“There are countless possibilities when 90% of the world’s population is within range of a cell phone tower, and many devices are equal to a supercomputer from fifteen years ago,” said **Sailesh Chutani**, CEO, Mobisante, which is rolling out a smartphone-based, handheld ultrasound device. He, alongside **Kanav Kahol**, Head of Affordable Technologies,

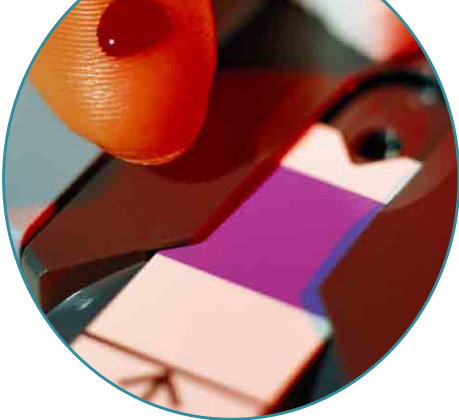
Public Health Foundation of India, provided a new perspective on how previously unconnected technologies can empower doctors and their patients. Kahol’s program recently released an interactive health tablet in India and created a video-gaming interface to train surgeons.

The insights and perspectives of a renowned group of global innovators fostered a broad discussion on how innovation can revolutionize processes and transform global health.

“How can we create quantum leaps in mobile health-enabled technology and take healthcare to the 95% of the world’s population who may not be getting it?” asked Anita Goel, whose company has created a portable rapid diagnostic tool that can detect genetic fingerprints from any biological organism and requires no electricity, running water, or highly trained personnel to operate it. “We need fresh thinking in our commercial business models because the traditional thinking has maximized profit margins by focusing on niche markets that give a quick return on investment,” she said.

Leaders of several life-saving enterprises





How can we create quantum leaps in mobile health-enabled technology and take healthcare to the 95% of the world's population who may not be getting it?

Anita Goel, Chairman & CEO, Nanobiosym

Positive Peer Pressure

The Summit recognizes the power of motivated individuals to change the game for health and creates an environment where forward-looking connections happen. Summit alumni have described the meeting as a one-stop shop for high-level global networking, where peers from diverse backgrounds gather to discover unexpected mutual interests and opportunities in global health. "The Summit represents for me that conscious moment in the year where I can sit down with colleagues to think as partners, to act as partners," reflected **Paul Stoffels**, Worldwide Chairman, Pharmaceuticals, Johnson & Johnson.

Conversations take root during plenary sessions and pick up again in hallways and private dinners. These conversations have led to outcomes such as the Access to Nutrition Index and the Vaccine Confidence Project based out of the London School of Hygiene and Tropical Medicine, to name just two. "The Summit's setting is more intimate, enabling more profound friendships and partnerships... the kind of peer pressure helps everybody evolve," remarked **M.K. Bhan**, Secretary, Department of Biotechnology, Ministry of Science and Technology, India.

"I made a number of connections with groups and entities that I would never have met otherwise," said one delegate. Each year, NBR, the Summit Secretariat, conducts a careful examination of the multifaceted global health community to draw unexpected, yet critical, voices into the conversation. "The Summit offered an unusual and much-needed opportunity for making new contacts, meeting new partners, and finding essential support," said **Colonel Vladimir Troitskiy**, Head of the Medical Department, Russia Federal Penitentiary Services, said regarding the 2009 meeting that addressed MDR-TB. **David Boyd**, Director for European Government and Public Affairs, GE Healthcare, underscored the opportunity of the Summit: "People will leave with an action item... Things happen."





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“In tackling global disease, it is not just implementing in a resource-poor setting what the development in the Western world has brought. New research is needed to address specific issues. Industry, in partnership with other stakeholders, can help create new transformational solutions.”

- Wim Parys, Global Head, Infectious Diseases, Janssen Research & Development,
Pharmaceutical Companies of Johnson & Johnson

are ushering a sea-change for patients around the world. **Rengaraj Venkatesh**, Chief Medical Officer, Aravind Eye Hospital, India, outlined the groundbreaking approach of the Aravind model, which achieves high-volume, high-quality, and cost-effective delivery of services. He emphasized the need for a well-defined strategy, optimizing existing technology, and effectively deploying staff. The Aravind model relies on a highly tailored assembly-line approach and has created an extraordinarily successful for-profit social enterprise. Delegates from the business sector and other health fields expressed the desire to replicate the Aravind model, yet acknowledged that a large part of the hospital's success is shaped by an innovative process that builds on a unique work and social culture and is nurtured under dedicated management, a process that is not readily transferrable, especially to different regulatory

and country environments.

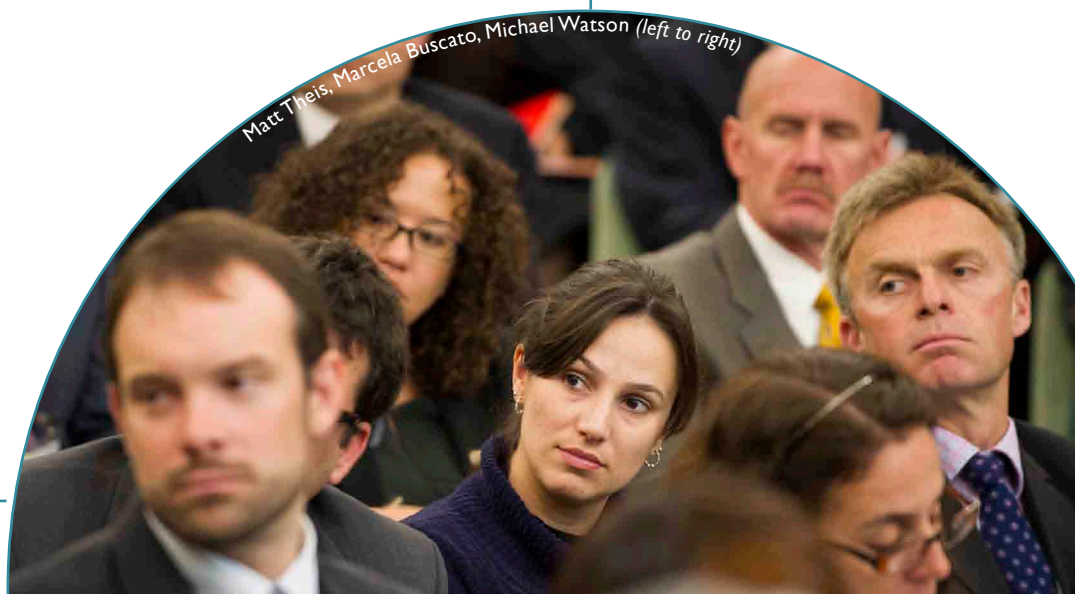
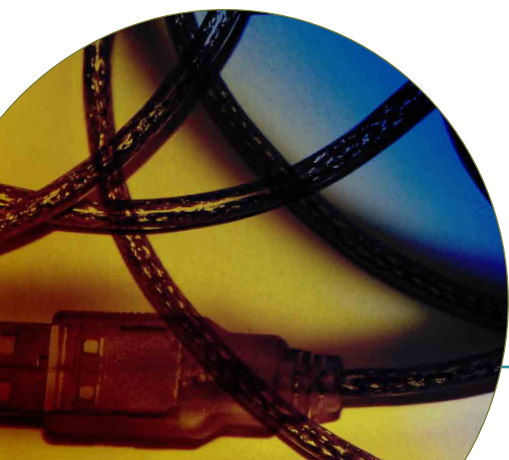
Through the creative cross-pollination of technologies, innovators can push discovery to new heights, as well as undo the negative impacts of man-made health risks, such as counterfeiting. **Ashifi Gogo**, CEO, Sproxil, described how a text messaging system that is tied to a barcode technology has helped consumers avoid the potentially deadly consequences of counterfeit drugs. “Over the last two years, we’ve empowered over a million consumers to verify products using cell phones,” Gogo explained, noting that the project is based on successful relationships with over three dozen manufacturers, including GlaxoSmithKline, Johnson & Johnson, and Indian generic manufacturers. “The future for us is looking at ways in which we can take some of these interventions to more developed markets as well as address counterfeiting problems in industries like personal care and





automotive replacement parts.”

To address some of the most obstinate challenges in resource-limited settings, industry executives have clearly shown they can lead the charge to effectively meet patient needs through inventive collaborations. **Robert Collymore**, CEO, Safaricom, the company that introduced M-PESA, a mobile-banking service that allows customers to transfer money, described his business as one that could facilitate accountability and aid in service delivery. “As a mobile phone company, we saw that we had the technology to deliver some very simple solutions,” he said. He gave as an example the partnership between Safaricom and Call-a-Doc, which works on a commercial basis and successfully gives millions of Kenyans an opportunity they otherwise might not ever have: the chance to speak to a physician.



A Common Language for Value



Paulina Nghipandulwa, Gopi Gopalakrishnan, Jacobo Quintanilla, Robert Collymore

Embracing the Financial Squeeze

☉— **WHAT IS VALUE?** And how do we innovate to improve it? On the global health stage, the value of a new technology or innovation varies widely and can express itself in unpredictable ways. Discussions in a Summit session titled “Affordable’ vs. ‘Cheap’: How Do We Assess Value; Who Should Pay?” explored the many different definitions of value and how it fits into the investment decision-making process.

This is a significant point of discussion, noted **Michael Watson**, Vice President, Global Immunization Policy, sanofi pasteur, stating that price is easier to address than value. “We’re cognitive misers and therefore always drawn toward price, since it’s easier to deal with than value,” he said. “Can we apply innovation to do a better job of measuring value so we can have a more balanced discussion between those two points?”



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We depend on the feedback of patients, because we believe that we need to give all our patients the right treatment—the right healthcare services at the right time in the right settings. But sometimes, because of the lack of technology, the latter doesn’t apply.

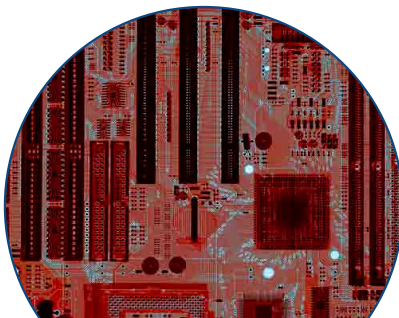
- Paulina Nghipandulwa, Director, Tertiary Health Care and Clinical Support Services,
Ministry of Health and Social Services, Namibia

Price is often seen as the pivot point for accessibility of new technologies. Too high a price denies life-saving drugs to millions of people. Yet, as Margaret Chan warned, “If we push the price of commodities down too far, the private sector will be the first to exit, and we cannot allow that to happen.”

Price, however, isn’t always an accurate measure of value, and a key Summit goal was to inspire a new appreciation of this concept. For a mother and child in a resource-poor setting, there is high value in immunization records, access to clean water, and a birth attendant who is trained in infant resuscitation. But how do we compare this value to the actual cost of each?

Summit delegates sought to broaden the definition of value beyond dollars spent and explore how innovation enables value when directed into diverse channels: from business models, policy, and technology to training, delivery, financing, and collaboration.

“Let’s not waste a good crisis,” recommended **Sally Davies**, Chief Medical Officer and Chief Scientific Adviser, UK Department of Health. Global financial austerity and challenges in resource-limited settings require innovation across the value chain. “I’m hoping,” added Davies, “that the current squeeze on finance will force people to accept that they have to look at process and adopt change.” Davies lobbied for the health sector to proactively address the current health environment within the current financial context—through new medical training models alongside other, perhaps less-conventional options.



Technology Alone Is Not Enough

Shiny, high-tech gadgets may be appealing, but new technology alone won’t transform global health. Nor will it address a shifting and increasingly complex disease burden.

“Out-of-the-box thinking will be essential to tame increasing obesity and diabetes,” said **Sally Davies**, Chief Medical Officer and Chief Scientific Adviser, UK Department of Health. “We should not overlook unconventional interventions, like using urban design for example, to achieve the outcomes we are seeking.”

Today, changes in diet present tough challenges for public health more broadly and this trend demands creative solutions. Along with technological solutions, **Andrew Jack**, Pharmaceuticals Correspondent, *Financial Times*, asked: “Shouldn’t we seek a higher regulatory standard of certain ingredients, such as sugar, or regulate them in a different way considering the limited impact of nudges to change behavior voluntarily?”

Summit delegates noted that implementing technological advances effectively requires a solid understanding of the end user, their fundamental needs, and their vulnerabilities.

“We should not miss the opportunity to have a discussion about people, communities, and perceptions,” said **Peter Piot**, Director, London School of Hygiene and Tropical Medicine. “Public trust in new technology is not always there.”





I'd love to see a public-private partnership, with the help and support of regulators, that really explores how we can deploy innovative technologies in completely alternative healthcare, non-healthcare settings, and non-healthcare infrastructure. This may be disintermediation and threatening to some, but more importantly, it could be a huge engine for experimentation in a safe way.

- Diana Lanchoney, Executive Director, Developing World Strategic Integration, Merck Vaccines

Taking an Active Role: Government's Critical Function

The role of government cannot be a passive one, asserted **K. Srinath Reddy**, President, Public Health Foundation of India. Government must invest, incentivize, introduce, evaluate, integrate, and scale up transformative and appropriate technology. It has a critical function, he continued, to regulate and support “pandemic technologies”—those developed abroad and appropriate for universal use—as well as “endemic technologies,” or local innovations, in order to readily respond to local needs. “We need to create local loops where we have a much greater interaction between the consumer and the innovator, and the government must provide the interface for that.”

Delegates largely agreed that marrying health and technology called for an active government role and considered framework options in order to do so effectively.

“Government has a role in evaluation and health technology assessment—absolutely,” Sally Davies said, “But there is also a need for mutual responsibility, and that’s where industry steps in to help government get it right.” To illustrate her point, Davies cited the state-of-the-art washing machine, with an



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Cell phones, suggestion boxes, radio phone-ins, and developing the local media: These are all ways in which the health sector can be more accountable to our customers. It's a powerful thought. It's also a strong argument because it helps us understand what customers want and what they need; therefore we are able to reduce costs.



- Jacobo Quintanilla, Director, Humanitarian Information Projects, Internews

overwhelming array of settings and options. Do we really need all those dials, she asked. Technology development can be indulgent and derailed by “vanity,” putting achievement ahead of genuine consumer need, Davies remarked. Other high-level government delegates shared similar perspectives.

“Technology is, at the same time, an opportunity and a threat,” remarked **Carlos Gadelha**, Secretary of Science, Technology and Strategic Inputs, Ministry of Health, Brazil. “It’s an opportunity for new products, new technologies, but at the same time, technology can induce separation of our society between those who can buy technology and those who can’t.” He stressed the

Technology is, at the same time, an opportunity and a threat.

Carlos Gadelha, Secretary of Science, Technology and Strategic Inputs, Ministry of Health, Brazil

Advances in Technology, Accelerating Accountability

In rural Bangladesh, a patient sends an SMS to the Ministry of Health: “It is 11 a.m. and there are no doctors at the clinic.” Staff absenteeism is not uncommon, but with the implementation of a Web camera and a Skype video-conferencing system in remote districts and sub-districts this is changing, explained **Abul Kalam Azad**, Additional Director-General, Planning and Development & Director, Management Information Systems, Directorate General of Health Services, Ministry of Health and Family Welfare, Bangladesh. Using telecommunications advances to monitor staff in rural and remote health facilities, Bangladesh has seen an 80%–90% increase in office attendance.

A session titled “Harnessing Technology to Strengthen Accountability” explored how innovation is empowering doctors, patients, and consumers. Participants identified ways to facilitate two-way communication flow between stakeholders—through radio call-ins, text messaging, and social media—to meet consumer needs and lower healthcare costs. An effective feedback loop, explained one high-level policymaker, heightened government awareness and responsiveness, prompting an increase in health funding.



Technology accessibility is the game-changer, and that isn't necessarily about science. It's about production, delivery channels, education, and application at the point of delivery. That's what we need to focus on to bring the technology we already have to the people who need it the most.

- Tadataka Yamada, Chief Medical & Scientific Officer, Executive Vice President, and Board Member, Takeda Pharmaceutical Co. Ltd.

importance of social participation to ensure the success of government health development efforts.

With so many innovations making their way through the pipeline, health technology assessment is a critical area to set priorities and manage limited budgets. Several delegates cited an urgent need for data so that governments and patients alike understand what they are paying for.

"While technology is the most important contributor to economic development and civil society, it also brings financial burdens, especially when not used appropriately," noted **Dezhi Yu**, Director-General, National Health Development Research Center, Ministry of

Health, China. "Problems arise with the irrational use of technology," Yu continued, detailing China's effort to bring down outpatient costs stemming from drugs and health examinations using high-tech instruments. "We cut nearly 20% to 30% of the costs and an assessment of quality of service indicated no change. So I'd argue that health technology assessments help us spend our money wisely."

As donors, governments must rethink their role with a clear understanding that current funding efforts should try to anticipate the needs that will emerge ten years from now, suggested **Christopher Whitty**, Chief Scientific Adviser and Director, Research and

Empowering Communication: The Media as a Key Summit Stakeholder

The Summit values the perspective, expertise, and insight that members of the media provide as key stakeholders. Thus it invites as delegates top-tier journalists from the United States and the United Kingdom, as well as from emerging economies such as India, Brazil, Uganda, Kenya, and South Africa. Unlike other meetings, where media are invited to report only, the Summit is a forum where journalists can contribute their hard-won perspectives and actively participate in the problem-solving process.

Media attendees also have unrivaled access to power players in the global health

community and are provided Secretariat support to schedule interviews with other delegates. The 2012 Summit hosted a dinner for media delegates, uniting leading journalists who are covering global health, for an informal discussion exploring how to support and strengthen the media's role as an effective communicator to link the scientific community and the public.

"I have been to many health meetings and this was the first time other journalists and I were given the space to simply talk and share views about what it is like to cover health in our vastly different settings,"

said **Anso Thom**, Print Editor, *Health-e News Service*, South Africa.

The Summit also held an Expert Roundtable, open to the local press corps, titled, "Fast Forward: Perspectives from the Next Frontier of Health." A thought-provoking panel discussion, led by international pioneers in health, highlighted disruptive innovations shaping healthcare now, in 2020, and beyond.



Jie Liu



It's quite amazing how many well-intentioned conversations fall apart because of the presumption that the other guy is implicitly bureaucratic, greedy, or lacking an understanding of developing countries.

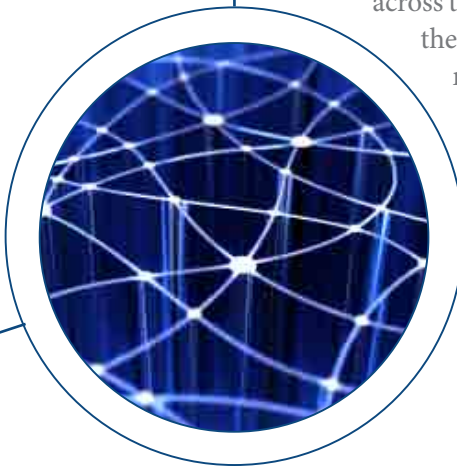
Steve Davis, President & CEO, PATH

Evidence Division, UK Department for International Development. As the doctor-to-patient ratios in developing countries fall, he said, "The financial barriers in the future won't be the cost of goods, but the bottleneck of healthcare providers as conventionally understood."

Partnerships: Cultivating "Tri-Sector Athletes"

In today's world of multidimensional innovation, partnership must go beyond mere deal-making, said **Steve Davis**, President and CEO, PATH. These collaborations, especially among policymakers, industry leaders, and NGOs, nurture valuable "tri-sector athletes" and are essential to solutions that enhance value across the health delivery system. Cultivating these collaborations, however, requires a measure of trust and commitment.

"It's quite amazing how many well-intentioned conversations fall apart," Davis said, "because of the presumption that the other guy is implicitly bureaucratic, greedy, or lacking an understanding of developing countries. We need to peel back the layers of the onion to



Steve Davis



get at the underlying biases. This shows us where incentives need to be aligned, and it is the most critical work.”

Public-private partnerships (PPP) have fueled many of our highest global health achievements. Can we take them even further? Delegates reaffirmed that there is still much work to do to mine opportunities that such partnerships offer.

Donors can push partnerships in new and promising directions, said **Frederick Mutebi**, Chief Finance Officer and Founding Director, Quality Chemicals Ltd., a subsidiary of Quality Chemical Industries Ltd. in Uganda. He urged donors to be proactive partners with local enterprise to produce new health technologies. This partnership approach has an additional, far-reaching benefit: it expands value beyond conventional terms. By providing local employment and stimulating economic opportunity where it might not otherwise exist, Mutebi explained, donors can also play a pioneering role in diminishing poverty and its associated diseases.

“Lack of opportunity is creating a lot of problems,” stated Mutebi, noting that despite the prevalence of HIV/AIDS and malaria in Africa, only 1% of the relevant drugs or remedies are manufactured on the continent.

Scaling up local pharmaceutical manufacturing capacity “allows us to create economies that reflect our problems,” he said. “We should make sure that Africa’s disproportionate disease burden doesn’t just serve to bolster manufacturing opportunities elsewhere.”

A number of participants pointed to partnerships that fall outside the traditional mold, yet are essential to supporting global health efforts and prevent fault lines from forming where we least expect them. Such is the case with media, which is often overlooked as a valuable partner in building understanding and trust among stakeholders, explained **Mia Malan**, University Lecturer at Rhodes University and Journalist for South Africa’s *Mail & Guardian*. A number of participants noted the important role journalists play as the bridge between the scientific community and the public. Yet in regions where global health challenges are greatest, journalists often lack support and scientific training.

“I think when you report on health technology, especially in a developing country, it’s really important that there’s a very strong partnership between technologists, scientists, and the media,” said Malan. To illustrate her point, she recounted how a highly respected investigative TV news show in South Africa



hailed a pain relief device that was later proven to be fraudulent. “I’m amazed that not a single scientist spoke up,” Malan remarked. She noted that scientifically trained journalists are invaluable in effectively communicating global health issues; yet in South Africa, they are few.

Other unlikely allies exist for innovative partnerships, but we haven’t created an ideal social environment to nurture them, observed **Patricia Garcia**, Dean, School of Public Health and Administration, Universidad Peruana Cayetano Heredia, Peru. “We need to do a better job at motivating and training possible or future innovators.” She called for a multi- and trans-disciplinary approach to work and education: “We need to prepare developers, implementers, policymakers, regulators, and other users of innovation.”

Nigel Crisp, an Independent Member of the UK House of Lords, agreed that a “systemic approach” begins to address

questions of scalability, affordability, and quality. “Technological innovation needs to sit alongside process and business innovation; these all must fit together.”

Business Models Without Borders

“A slow heartbeat in Minnesota is much like a slow heartbeat in China,” said **Mike Hess**, Vice President, Bradycardia Research and Development, Cardiac Rhythm Disease Management, Medtronic Inc. “But who delivers the pacemaker, how they pay for it, what the patient expects, and how often they come back for follow-up are dramatically different.”

A number of Summit delegates shared lessons learned from when their companies embarked into new markets. China was a common example, because it is a market that requires companies to dramatically recalibrate

VOICES OF THE SUMMIT

Not only do we need investments in innovation, in the game-changing technologies of the future, but also in making sure that what we have on the ground can be used optimally.

- Zulfiqar Bhutta, Founding Chair, Division of Women and Child Health,
The Aga Khan University, Pakistan





their business, marketing, distribution, and manufacturing approaches. **Jie Liu**, Chief Operating Officer, Mindray Medical, shared his experience in shepherding his company in the other direction. Mindray Medical's strategy to take their products outside of China and into other emerging markets is to create products appropriate for the local environment, while providing high value at low cost.

There are many pathways to innovation, Liu remarked. "We did everything to reduce cost, but we also innovated along the whole value chain of product development."

"As we go into emerging markets segments beyond the top of the pyramid, and seek to drive adoption, the innovation is essential in the business model," said **Mark Phillips**, Chief Marketing Officer, Healthcare Systems, GE Healthcare. "I've never seen a project fail because of the specific technology; rather, it was the implementation, the business model, or the lack of good coordination across different sectors." Phillips noted that in emerging markets most business models aren't designed beyond initial purchase, and little thought is given to the total cost of ownership

over the next five years, which would include new parts and service, and ultimately determine if a device is sustainable.

"The WHO estimates that the majority of medical devices delivered in low-income countries fail, often within just a few months," said **John Anner**, President, East Meets West Foundation, who offered a straightforward model to turn these alarming figures around while building a better sense of partnership with the community. "One simple solution is to offer a warranty," he stated. His NGO, which manufactures and distributes medical equipment as well as developing clean-water and sanitation solutions, provides a three-year warranty against failure, with a promise of repair service within five days. This has been implemented in village clean water systems and neonatal intensive care units in Asia.

He noted that in Southeast Asia, approximately 70% of newly created village water systems fail within twelve months, while the East Meets West Foundation has achieved a 95% long-term success rate. His foundation has provided a five-year warranty against failure, with a promise of repair backup service



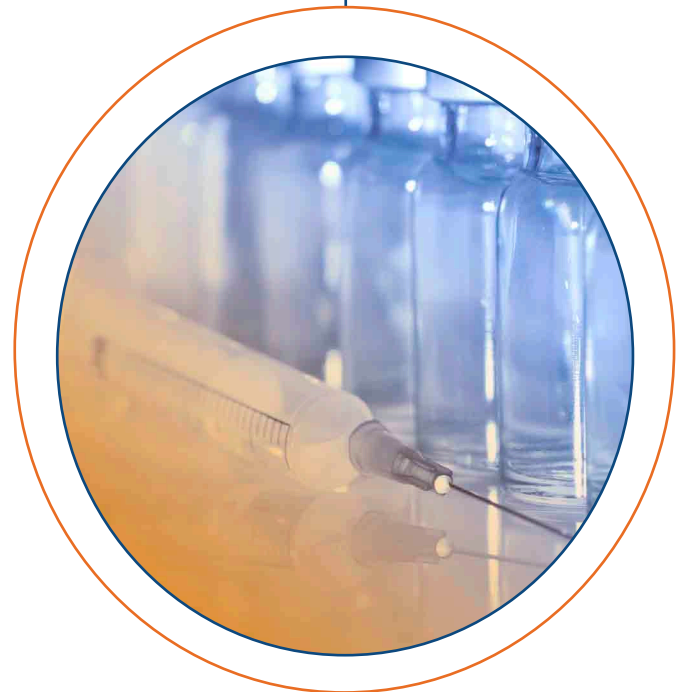
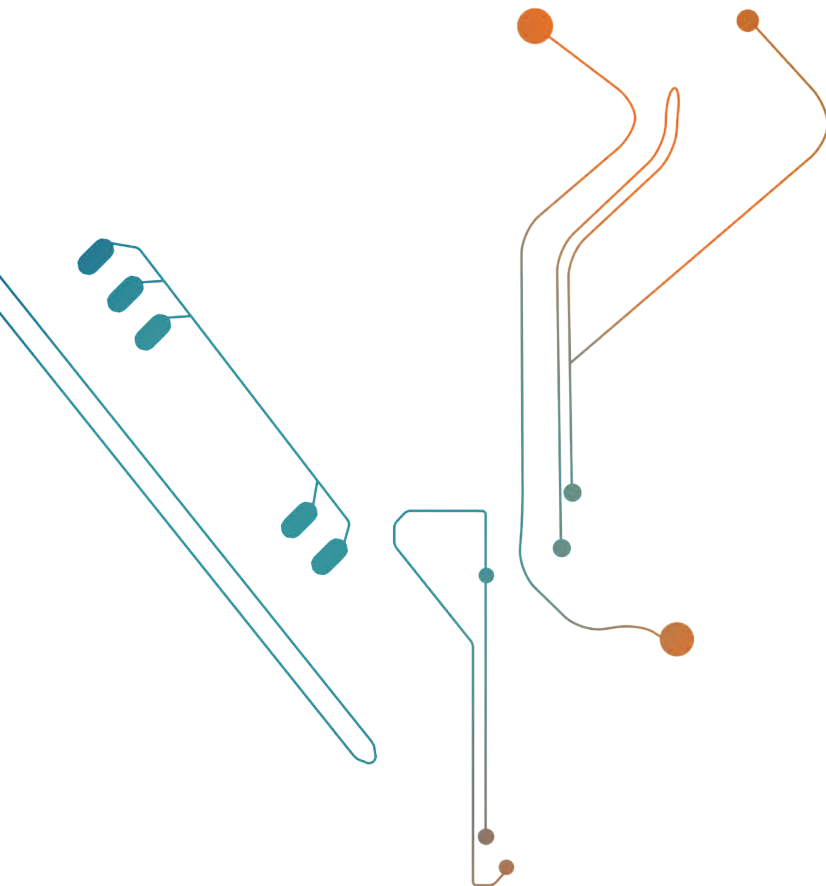
VOICES OF THE SUMMIT

When 90% of money is spent on health services and health delivery, the key question in the debate rests on innovation in business models.

- Ted Bianco, Director of Technology Transfer, Wellcome Trust



within five days. Anner emphasized, “We’re at financial risk if we don’t succeed...so it’s about creating the incentives so that everybody’s invested in the long-term success of that project.”



Charting and Navigating Turbulence



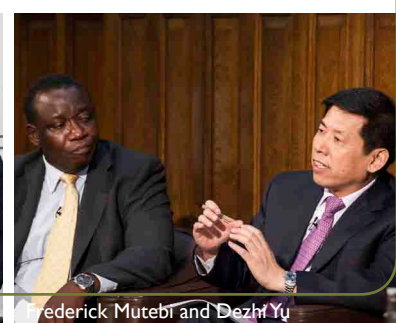
Mia Malan and Ashok Jhunjhunwala



Ali Irfuruki



Rosanna Peeling, Trevor Mundel, Michael Watson, Rhona Applebaum (left to right)



Frederick Mutebi and Dezhi Yu

Boosting Regulatory Bandwidth

☉—“**HOW MANY OF YOU** would travel on an airline that is not a member of the International Air Transport Association?” asked **Rosanna Peeling**, Professor and Chair, Diagnostics Research, London School of Hygiene and Tropical Medicine.

Global aviation, she noted, is regulated under the umbrella of a single industry association, which “allows airlines to operate safely, securely, efficiently, and economically under clearly defined rules.” There is no global diagnostic industry association, which is creating a Wild West-like environment in the global regulatory space for diagnostics.

“Fifty percent of developing countries don’t regulate diagnostics, so the market is flooded with bad tests, and companies manufacturing good tests don’t want to compete in that space,” stated Peeling. “In countries where diagnostics are regulated, the process is characterized as very slow, very costly, extremely risk-averse, and not very transparent. It is a real disincentive for innovation.”

Medical devices and pharmaceuticals face an equally arduous battle to secure regulatory approval, and to operate globally and break into new markets, health

industries must navigate a new frontier of regulatory hurdles. The food industry faces similar barriers. Yet, there are tools to ensure consumer safety, such as the harmonization of guidelines, standards, and processes, that could be applied to both sectors, according to **Rhona Applebaum**, Vice President and Chief Scientific and Regulatory Officer, The Coca-Cola Company, who also serves on the Science Advisory Board of the U.S. Food and Drug Administration (FDA).


“Regulators have only so much bandwidth,” she said. “They have to prioritize in order to protect the public’s health. But it’s in everyone’s best interest to expedite the necessary innovations that also benefit the public’s health.”

There are other regulatory parallels between multinational food and beverage sales and the international health industry, such as bottlenecks and added and unnecessary costs. The session discussion turned to the pressing issues that define the regulatory space: the need for a trusting environment, more robust regulatory guidelines, and acknowledgement that accountability for regulators is asymmetric. In other words, regulators have greater incentive to prevent a life-saving product from receiving approval instead of supporting a breakthrough.

Delegates also debated the pros and cons of regulatory harmonization, especially on a regional basis, which has immediate appeal but questionable advantages for countries without adequate capacity or resources.

“If we want the benefits of harmonization, we need to ensure there is a proper dialogue and people see those benefits—not just for the large multinational companies, for which harmonization is a small expense—but for small, innovative companies for which the lack of harmonization could be a death sentence,” said **Herb Riband**, Vice President, External Affairs International, Medtronic Inc.





Regulators should add value and be a part of the quality system, not an audit system, which comes after the fact and tries to establish guilt.

Trevor Mundel, President, Global Health,
Bill & Melinda Gates Foundation

At the heart of all of these issues are some core questions: Is it possible to develop an effective framework to deliver needed health interventions without compromising safety and quality? Are regulatory processes such as WHO prequalification working, and is regulation keeping up with technology advances? The discussion moved toward identifying concrete suggestions.

Trevor Mundel, President, Global Health, Bill & Melinda Gates Foundation, outlined a quality-by-design approach. “Regulators should add value and be a part of the quality system, not an audit system, which comes after the fact and tries to establish guilt,” he commented. This approach, he added, would introduce more accountability, which is relevant when \$100 million is invested in developing products that don’t receive approval. “This is a zero-sum game,” emphasized Mundel. “The \$100 million lost is taken out of the whole healthcare system and nation-states are often paying considerable sums toward R&D, whether they are explicit or implicit.”

Mundel also proposed that the adaptive trial design model be applied to registration for low-risk product candidates in phase II trials, allowing them to launch on a registry basis into certain markets in tandem with



phase III trials. “This would provide a broader set of safety data and you would have real-life experience at the final registration,” he said. “The delivery of exact data in one package is ideal for developing countries, where data from post-marketing surveillance is critically missing.”

After a brief brainstorming, a number of delegates supported Mundel’s idea and outlined alternative frameworks and reforms to re-energize the regulatory space and enable the regulator to add greater value to the process.

Martin Fitchet, Chief Operating Officer, Janssen Research & Development, Janssen Pharmaceutical Companies of Johnson & Johnson, cited a critical gap in regulatory guidelines for disease prevention. “Prevention strategies, I think we can all agree, have to be the way forward in terms of broader global health goals,” he said. “The more guidance the regulatory agencies can provide to us, the more we’ll be able to justify the investments in the areas that have the greatest impact on public health.”

“There’s always going to be a tension in the regulatory space, but the important thing is that it is a healthy tension, and it delivers, as much as possible, the solutions to unmet needs,” remarked Michael Watson.

North and South: Propelling Biases Toward Symbiosis

As we seek to innovate across borders, break out of silos, and strengthen health systems in resource-limited settings, other tensions emerge: between North and South and among the private, public, and nonprofit sectors, to name a few. Do developed countries really know how to innovate for developing countries, and vice versa? Does either side really know how to collaborate in a way that combines real market effectiveness with doing good?

Delegates addressed these and other important and at times uncomfortable questions head-on.

“How have we failed to [create a sustainable model for healthcare] in a world where billions of people are ready to go to any length to protect their most prized possession: their life?” asked **Ali Mufuruki**, Chairman & CEO, Infotech Investment Group Ltd.

Mufuruki noted that poor communities worldwide consume products that have no health value, but are at an accessible price point, such as soda and phone credit to send text messages. He underscored the clear and compelling need for a pay-as-you-go model that will sell poor people healthcare services

VOICES OF THE SUMMIT

These are the fundamental issues that we need to start dealing with on a macro level: food security and interventions, workplace disease prevention, social security interventions, and social protection. That’s going to do a lot more for the health of the nation as opposed to continuing to do therapeutic and diagnostic interventions.

- Barry Kistnasamy, Executive Director, National Institute for Occupational Health, South Africa





that they can finance themselves. “Coca-Cola sees in every African a business opportunity,” he stated, but the health sector and pharmaceutical industry have yet to realize similar prospects in low-income countries.

Mufuruki’s comments prompted lively discussion and diverse perspectives. “Market conditions vary in countries and markets change,” said **William Castell**, Chairman, Wellcome Trust, but “the world of industry hasn’t ignored the African opportunity.”

A number of delegates pointed to an underlying current of arrogance that partners from the North must address before attempting to work effectively with counterparts in the South. How can we collectively develop a more productive dialogue between all regions? As we look to the global South more broadly, this is especially significant when we consider that Africa will be home to one-third of the world’s population by the end of the century. While many see great opportunity and economic potential today, others only see a continent grappling with severe disease burden and resource constraints.

“Africa is a challenge, not a problem,” said **David Boyd**, Director, European Government and Public Affairs, GE Healthcare. “Business has failed in the past by trying to force onto Africa the technologies and techniques that may or may not have worked in the West and that’s why we now work to develop technologies in the regions they are designed for.”

Mark Phillips agreed, stating that while a company like GE specializes in technology, there was an important lesson to learn when scaling up in emerging markets segments and resource-limited settings. “We learned a lot about what we didn’t know,” he said, and diverse partnerships were essential, between NGOs, industry, and government. “Now our approach when we go into a country is to ask a lot more questions and look for partners on the ground.”

Ara Darzi, Paul Hamlyn Chair of Surgery and Chairman, Institute of Global Health Innovation, Imperial College London, suggested that we synthesize the diverse strengths that the North and South bring to the table and clearly understand the powerful symbiotic relationship that exists between the two.

“When you look at the South, innovations are mostly process or business models... whereas in the North, innovation has been historically focused on technology,” he observed. If we can successfully strike a balance between the areas of innovation and principles adopted in both the North and South, Darzi added, we stand a better chance at achieving greater affordability, scalability, and quality.

Tensions invariably arise when the conversation turns to philanthropy, the long-term sustainability of foreign aid, and the drive for countries to become self-sufficient. Summit



A Mongolian Woman receives an ultrasound exam in a local hospital. UN Photo/Eskinder Deba



Kewen Jin

delegates voiced diverse views and examined the overall success of these efforts to date.

“I think first of all we need to recognize why we engage in philanthropic endeavors in the first place. It’s because of market failure, because of a lack of infrastructure,” offered **Jon Pender**, Vice President, Intellectual Property & Access, Global Health, GlaxoSmithKline, noting that a pharmaceutical company doesn’t have access to the patient in the same way Coca-Cola has access to a consumer. “We wouldn’t ordinarily choose to give away hundreds of millions of dollars worth of product, but we think it’s the right thing to do even when there’s no business opportunity in many of these areas.”

Other delegates noted the different challenges that companies face as they attempt to straddle the line between philanthropy and actual market development. The principal challenge remains: big investments that yield small profit margins is not a formula that fosters incentive or innovation.

One delegate pointed to lessons that we might draw from the telecommunications revolution in Africa. Technology and the private sector transformed a public good, ineffectively provided by government, and turned telecommunications into a thriving, profitable business that also provides taxes to bolster state coffers.



Sameer Sawarkar and Sethuraman Panchanathan



We must be careful
not to get carried
away with the idea that
technology is going to
solve all our problems.

Francis Collins, Director,
U.S. National Institutes of Health

Technology at What Cost? Reining in Unintended Consequences

Has our infatuation with technology led us to ignore the human factor? Citing Nobel Peace Prize laureate Dr. Albert Schweitzer, **Francis Collins**, Director, U.S. National Institutes of Health, reminded Summit delegates: “Our technology must not exceed our humanity.” Building on this premise he cautioned, “We must be careful not to get carried away with the idea that technology is going to solve all our problems.” He advocated for evidence-based research, adding, “We have a lot of hard work to do, running studies in a rigorous way, in real-world situations, in low-income countries, in order to demonstrate that a technology actually changes outcomes.”

Technology is universally agreed to have accelerated the improvement of health outcomes, but rushing to solutions can lead to unintended consequences, which can erode trust and create serious social dilemmas. In Peru, a rapid HIV test introduced in a low-prevalence population that resulted in many false positives inhibited the uptake of a new rapid syphilis test. Ultrasound technology revolutionized healthcare, but it has been misused and applied to prenatal sex selection. The resulting skewed gender ratios that have characterized communities in China and India will have long-lasting and profound impacts on their respective societies.

The debate shifted to who is responsible





We underestimate the value of people stepping up and shaking things up a little.

- David Gold, Principal, Global Health Strategies

when technology is abused: the manufacturer, the government, the medical community, or the patient?

Kanav Kahol of the Public Health Foundation of India noted that manufacturers can help to counter some abuses, suggesting that further innovation can undo unintended consequences. He used the ultrasound device as an example. “Add a recording option. Then simply inform the doctor that some sessions may be recorded for monitoring. That could help solve the issue.”

Regulatory hegemony of the United States and Europe over other countries and regions was identified as one source of some unintended consequences. “The U.S. Federal Drug Administration is the gatekeeper for the largest market in the whole world and a unique product of the legal regulatory and political environment of the United States,” said **Kewen Jin**, Managing Director, Nimbus Innoworks. Exceedingly high regulatory hurdles, he added, can eliminate a promising product that could save hundreds of thousands lives.”

Is the Conversation Getting Smarter? White Space and Elephants in the Room

Participants shined a spotlight on the “elephants in the room,” and urged each other to rethink their respective roles, push beyond the status quo, and advance a holistic, lateral approach to the challenges and opportunities

that may be hidden in plain sight, or worse, simply ignored.

“What about ‘white space?’” asked **Joseph Rosen**, Professor of Surgery, Dartmouth-Hitchcock Medical Center and Senior Lecturer, Thayer School of Engineering, Dartmouth College. “We can discuss the issues we all know plenty about, but around them there is the white space that we don’t talk about.” Rosen urged delegates in the room not to forget our collective blind spot: we don’t know what we don’t know.

A lack of information creates enormous obstacles, warned Margaret Chan, noting that nearly half of WHO member-states lack adequate public health registries. “They don’t know how many births and deaths they have. So what are you investing in? You are investing in a black hole.”

Delegates pointed to another elephant in the room: the distribution of power between players. Large, established, incumbent companies often cast a long shadow over smaller firms. But even with extensive resources, are the larger private entities nimble enough to adequately address the nuances in different settings that require tailor-made solutions?

“We work within the poorest states of India...and have always found a resonance working with small, hole-in-the-wall companies,” explained **Gopi Gopalakrishnan**, President and Founder, World Health Partners. “They are few, but they are willing to spend time with us in the field to understand, innovate, and produce solutions. But there is



VOICES OF THE SUMMIT

Everybody publishes their research successes, but I think you often learn a lot more from failures than you do from successes. When you create a forum like this, in an open and safe space, you can share lessons from failures.

- Matt Theis, Country Director, India, Dimagi

no support available to these small companies, and they are dying out.”

Elephants emerge in policymaking circles as well. One example is Avastin, a therapy for colon cancer that costs \$20 per application for the off-label treatment of macular degeneration, an eye disease. The same active ingredient is marketed by another company for macular degeneration as Lucentis and fetches \$2,000 per application. Although the product is filed under the same patent, prescribing pharmaceuticals for unapproved use, or off-label indication, prevents countries from incorporating the less expensive application into their health systems. A number of delegates cited this example as a failure to elevate a public health good over profits, as well as the role that policymakers can play in working with industry to improve access to life-saving technologies.

“Avastin illustrates how government needs to be a leader in protecting the health of the population,” said **Yot Teerawattananon**, Leader, Health Intervention and Technology Assessment Program, Bureau of Policy and Strategy, Office of the Permanent Secretary, Ministry of Public Health, Thailand. “We have an essential and affordable health technology; it must be made available for the people who need it.”

Many argue that technology is only 10% of the solution, but we are not paying enough attention to the non-technology requirements

of global health, remarked **Kentaro Toyama**, Researcher, School of Information, University of California, Berkeley. “The conversation is getting smarter, but I don’t know if this is translating to smarter actions. The reality is that everyone gets excited about the shiny new gadgets.”

Delegates acknowledged that the allure of high-tech gadgetry has led to a number of misadventures in global health. Meanwhile, the need to prioritize affordable innovation is urgent, reminded **Peter Singer**, CEO, Grand Challenges Canada and Director, Sandra Rotman Centre, University Health Network and University of Toronto. “It is a challenge we need to take to scale, but we’re not doing it, and we can’t afford not to.” Singer identified this issue as a key frustration and urged delegates to “build on it for concrete action.”

What about the fundamental challenges that are repeatedly raised and acknowledged within global health circles but never fully addressed?

“If we don’t mobilize ourselves collectively, from private sector, from governments, from NGOs, and academia, to really deal with some of these basics, such as sewage systems,” warned **Stefan Germann**, Director, Learning and Partnerships, Global Health and HIV Team, World Vision International, “we won’t build a sufficient foundation where we can accelerate into these more advanced stages of technologies.”



A Spectrum, Not a Dichotomy: Realizing the Value of Failure

Technology can fail. The challenge is using failure to fuel success and inspire innovation. But first, have we correctly defined success and failure?

“There is a spectrum rather than a dichotomy between failure and success,” said **Samukeliso Dube**, Head of Health for Sub-Saharan Africa, Absolute Return for Kids (ARK). At one end of the spectrum, governments and the global health community are failing to implement technologies that work. “But it is because processes and the ecosystem around innovation and technology were not right at that time.” At the other end of the spectrum, Dube continued, it is offering technology that doesn’t work. In the middle there are technologies that we know work, but when they were implemented, the local population rejected them. “When we talk about failure, especially in Africa, it’s because we have divorced healthcare from development,” Dube said. “Our challenge is that we are investing in the status quo rather than in the future. We need to create a future that does not exist right now.”

How can we harness failure to add greater value to innovation?

“Innovation has to have failures,” suggested **Ashok Jhunjunwala**, Professor,

The conversation
is getting smarter,
but I don’t know if
this is translating to
smarter actions.

Kentaro Toyama, Researcher, School of
Information, University of California,
Berkeley

Indian Institute of Technology Madras. As an example, he cited Neurosynaptics, a company that developed a remote telemedicine kit incubated at his institution. However, the rollout to rural communities was rife with problems. In the effort to improve uptake, researchers discovered they had made numerous missteps across social, infrastructural, human resources, and business fronts. “We struggled for seven to eight years, but we have not given up,” said Jhunjhunwala. “The business is fragile, but it is working much better.”

“The Neurosynaptics example provided an important insight on the need for time and commitment to fully realize a successful innovation. There is also the need to acknowledge failure, and in the private sector this is a specific challenge,” admitted Michael Hess of Medtronic. We initially missed the target for a pacemaker we designed specifically

for the Chinese market. But what was interesting is that from a commercial industry standpoint, it was very hard to share and extract the lessons from this failure inside the company,” he reflected. “It took nearly ten years before someone objectively examined and shared what actually happened.”

Robert Collymore of Safaricom examined the equation from the opposite perspective. “We not only fail to learn from each other’s mistakes, but we also fail to learn from each other’s successes.” He cited SMS for Life, a program in Tanzania that ensures the stock levels of malarial drugs are in the right place at the right time. “This is an example of success that has not really been translated to many other countries, although those countries indeed have the same problems as Tanzania. It’s a failure not to take best practices we know work and move them into other countries.”



Our challenge is that we are investing in the status quo rather than in the future. We need to create a future that does not exist right now.

Samukeliso Dube, Head of Health for Sub-Saharan Africa, ARK



Maintaining Strong Ties with Asia While Building Global Connections

The inaugural 2005 Summit hosted representatives from ten countries: Australia, Canada, China, Japan, South Korea, Malaysia, Singapore, Thailand, the United Kingdom, and the United States. Since then, emerging economies such as India, South Africa, and Brazil have become key players in the Summit process, and the Summit theme and agenda have kept in step, integrating new and evolving perspectives from diverse leaders. In 2012, the meeting hosted delegates from 43 countries, including first-time representation from Myanmar, Namibia, and Botswana.

The Summit has maintained strong links with Asia while expanding its global footprint. Japan is a founding pillar among the East Asian countries represented at the Summit. A consistently robust delegation from the country's Ministry of Health, Labour, and Welfare and the Japan International

Cooperation Agency, as well as key industry CEOs, has provided steadfast support and input in the Summit program. Another key pillar is China. Health reform and health advances in the world's most populous nation remain a cornerstone of discussions, and China is always strongly represented at the Summit by distinguished and influential leaders from government, academia, and industry.

Each year, the Summit gathers a group of strategic leaders across the stakeholder chain that is distinct from its previous meetings. Recent Summit meetings reflect the influence of India as a driver of new and promising technologies and its growing role in global health. India's thought leaders and innovators have become key to a meaningful conversation and fruitful exchange between North and South.

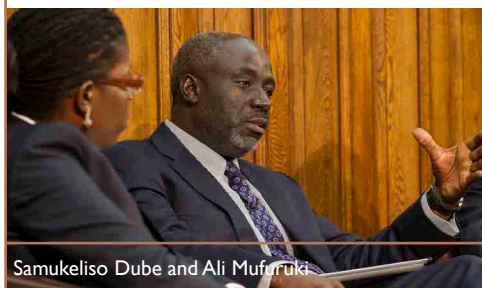
Shattering the Status Quo: Ecosystems Overcoming Ego Systems



Naiyin Wang, Jilan Liu, Kewen Jin, Hufeng Wang (left to right)



Uwe Reinhardt



Samukeliso Dube and Ali Mufuruki



Mark Phillips and Rengaraj Venkatesh



K. Srinath Reddy

The Intersection of Innovation: Where the Lab and the Mind Meet

◎—**REVISING OUR COLLECTIVE** understanding of success and failure gives us the agility and resolve needed to break through the status quo. Summit delegates were challenged to think: how might we update our outlooks in other ways?

“The most important innovation that needs to happen isn’t in the lab or the finance world. It needs to happen in our minds,” stated Ali Mufuruki of Infotech Investment Group Ltd. “You have to decide that you can do healthcare business with poor people.”

Mufuruki’s example is just one of numerous steps we can take to create an “ecosystem of innovation.” Other fundamental shifts are required, such as focusing on managing health rather than treating illness.



VOICES OF THE SUMMIT

“If you only look at innovation through the lens of technology, you are missing a big part of innovation, and in fact, you cannot develop the next generation of vaccines. We need to keep looking at innovation in partnerships and innovation in funding.”

- Christophe Weber, President & General Manager, Vaccines, GlaxoSmithKline

We must also rethink how we educate health practitioners, said Patricia Garcia. In developed and developing countries alike, a forward-looking health workforce will be a key determinant of successfully implementing and integrating innovation.

What other gaps exist that prevent innovation from flourishing? The discussion turned to creative models that incentivize entrepreneurialism while addressing the disconnect between Western business culture and societal needs in developing countries. One example cited is the African Diaspora Marketplace, which is funded by the U.S. Agency for International Development and the Western Union Foundation, and enables U.S.-based African entrepreneurs to return to their home countries and start companies.

To truly address emerging global health challenges, multiple disciplines must also come together to bridge the gap between patent protection and public interest, price point and pocket capacity of the consumer, and developed and developing economies, said K. Srinath Reddy. “We need to create an academic ecosystem of research, which overcomes the ego systems of individual disciplines.”

The most important innovation that needs to happen isn't in the lab or the finance world. It needs to happen in our minds.

Ali Mufuruki, Chairman & CEO,
Infotech Investment Group Ltd.

Past Summit Outcomes: Building a Legacy

The Summit Secretariat makes a deliberate effort to have a personal and in-depth conversation with every single Summit invitee in advance of the meeting to identify the crossroads where meaningful connections between individuals can be made. This action has created a legacy of outcomes and achievements.

In 2007, **Margaret Chan**, Director-General, WHO, announced the establishment of a WHO pre-pandemic flu vaccine stockpile. Glaxo-SmithKline simultaneously pledged a 50 million-dose donation, to which other companies also contributed. At the 2009 Summit, **Chris Viehbacher**, CEO, Sanofi, added momentum to the stockpile effort with a contribution of 100 million doses of the H5N1 flu vaccine.

The 2007 Summit also led to conversations between **William Castell**, Chairman, Wellcome Trust, and **Mark Feinberg**, Vice President, Vaccines and Chief Public Health Officer, Merck & Co. This catalyzed the creation of a \$145-million nonprofit research institute in India focused on optimizing current vaccines for greater accessibility and taking promising vaccine ideas to the test stage.

The Critical Path to TB Drug Regimens, an unprecedented public-private partnership on TB drug development, was founded at the 2009 Summit and publicly announced in 2010. The Access to Nutrition Index, modeled on the Access to Medicines Index, was conceptualized at the 2008 Summit by GAIN, the Bill & Melinda Gates Foundation, and Wellcome Trust.

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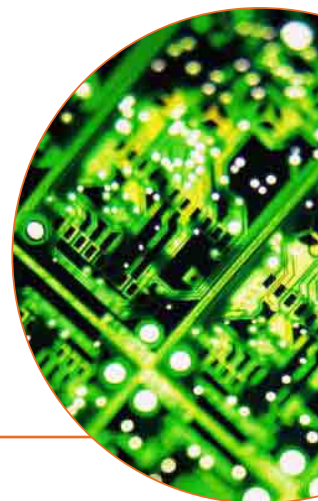
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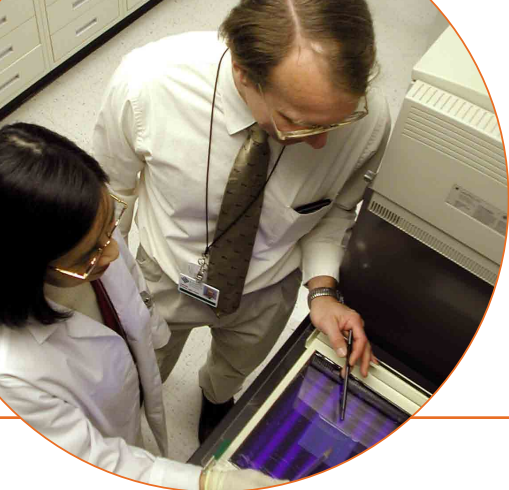
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