On November 2 and 3, 2006 the NBR Center for Health and Aging's Health Information Technology and Policy (HIT) Lab convened 40 members from 10 economies in Singapore to examine examples of successful HIT adoption across the globe and identify ways to scale technology solutions for resource-poor settings. Participants also visited the entirely paperless Singapore General Hospital, led by Group CEO Ser Kiat Tan.

Background

The Health Information Technology and Policy Lab examines the national and international policy framework surrounding public health, science, and technology with the goal of improving the environment for the adoption of information technologies that can improve health outcomes. The Lab convened four workshops in 2006: in Washington, D.C., Seattle, Tokyo, and Singapore.

This HIT Lab is an ongoing initiative that was launched at the 2005 Pacific Health Summit.

key takeaways

- Governments are not always the most effective drivers of HIT adoption.

- Non-traditional incentives can help move HIT forward in regions without strong health infrastructure.

- Standardization can come in stages, but must be justified at each step along the way.

- An unmet deadline does not necessarily mean failure in the context of HIT adoption and implementation.

- Metrics for measuring the benefits of adoption will help build the case for HIT.

Featured Participants

Jeremy Bonfini
Worldwide Digital Health Policy Manager, Intel

Lily Vo Thi Kim Hue
Chief, Department of Community Child Health, Research, and Training, National Hospital of Pediatrics, Vietnam

Bruce Greenstein
Senior Director, Worldwide Health, Microsoft

JVG Krishna Murthy
Senior Program Manager, PATH, India

Vikram Kumar
CEO, Dimagi, Inc.

Mark Lediard
Director of South East Asian Affairs, Voxiva

Myoungho Lee
President, Korea e-Health Association and *Professor*, Yonsei University

Jack Yu-Chuan Li
Vice President, Asia Pacific Association for Medical Informatics

Bee Kwam Lim
Deputy Director of IT, Information Technology Branch, Ministry of Health, Singapore

Danny Maher
Vice President, New Markets, Healthphone Solutions

Risaburo Nezu
Senior Managing Director, Fujitsu Research Institute

Ser Kiat Tan
Group CEO, SingHealth and *CEO*, Singapore General Hospital

Thongchai Thavichachart
CEO, Thailand Center of Excellence for Life Sciences

Howard Zucker
Assistant Director-General, Health Information Technology and Pharmaceuticals, World Health Organization

Scaling HIT for Resource-Poor Settings

Investment Decisions

Stakeholders want to invest in the best IT solutions; however, in an era of "leapfrog" technology, stakeholders also need to be wary of disruptive innovations that render their investments obsolete. Even while the alternative of not implementing new technologies may translate to suboptimal care and services, the status quo is often the only choice in areas with very limited resources. Affordable pay-as-you-grow scalability, with hardware and software upgrades and ongoing technical assistance, could help to protect against obsolescence and to provide incentive for more investment.

Dr. Christopher Cheng (center), Chief Medical Information Officer and Head of Urology at Singapore General Hospital, demonstrated video-imaging capabilities in his department for HIT Workgroup members.

Incentives for Adoption

Non-traditional motivation could help revolutionize HIT adoption among individuals. For example, a Smart Card project in India bundled EMRs with supermarket discount cards to reduce loss. Another initiative used Bollywood films to draw individuals to health kiosks in rural areas. By contrast, financial incentives alone can backfire. In 1999, after Japan offered monetary reimbursement to hospitals to adopt HIT, the government had to rethink its incentive strategy as hospitals' financial expectations did not coincide with a full understanding of the requirements of HIT implementation.

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From Bullet-Proof Examples to Policy and Practice

Who Drives HIT?

While government support is critical for nationwide HIT adoption, in some cases individual institutions and the private sector are better poised to move HIT forward. For example, government-driven HIT adoption has been very successful in Singapore, Taiwan, and the United Kingdom, but less so in Japan. While the U.S. federal government is a strong advocate for HIT adoption, policymakers have not successfully instituted nationwide policies or tangible financial support for implementation initiatives; thus, individual institutions and state governments are moving HIT forward at different paces and in different capacities, making interoperability in that country all the more a challenge.

Policy Support

A government-driven process and artificial deadlines may at times increase resistance and limit success in HIT adoption. Nevertheless, governments must be prepared to provide leadership when necessary, for example through reforms to health reimbursement and regulatory systems in order to provide incentive for private participation. Additionally, there may be a need for privacy protection laws to address information security concerns as well as policies to effect changes in behavioral patterns or other initiatives to enable private-sector leadership in areas such as standards creation and infrastructure development. Private actors—in both healthcare facilities and industry—must also be willing to exercise leadership and collaborate with other stakeholders.

Implementation Challenges

While technology can be a powerful tool, IT alone is not the solution to global health challenges. Insufficient communication between stakeholders combined with a lack of buy-in from doctors and care professionals on the ground, administrators, and other stakeholders has doomed even many well-funded HIT programs to failure. Similarly, innovative disease monitoring programs have been foiled by the absence of sustained training and maintenance from IT professionals.

innovation highlight

In his opening remarks on November 2, Howard Zucker announced a new WHO challenge in Health IT:

WHO 100/10/1 Model

100: charge to care professionals to identify 100 essential health technologies, i.e., technologies that every clinic in the world should have

10: charge to businesses to identify their 10 most cutting-edge technologies and make them relevant for health

1: charge to young scientists and engineers to come up with revolutionary technology that will leapfrog us forward

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Case Studies of Effective Technology Adoption in Health

Cases Presented

India ∼ IT for Disease Reporting and Tracking
Japan ∼ Successes and Half-Successes of Electronic Medical Records
Singapore ∼ Standards: A Stepwise Process
Taiwan ∼ Four Levels of Interoperability
Thailand ∼ IT and Public Health
Vietnam ∼ Remote Interaction, Consultation, and Epidemiology

Practical Templates

While IT solutions should be appropriate to different settings, excessive customization can undermine the success of HIT initiatives. A simple approach to healthcare that utilizes basic existing technologies and that can address current needs should be the first step. Promotion of existing resources, such as Taiwan's Smart Card template, is a practical immediate focus. At the same time, governments should set forward-looking goals appropriate to their healthcare systems, such as interoperability of systems and portability of records.

Standards: The Best Can Be the Enemy of the Good

Drivers of HIT in Singapore recognized that each bit of standardization in the health system carries enormous human and financial cost, with interoperability as the driving force; as a result, the country focused initial standardization efforts on the most convenient, cost-effective areas: referrals and appointment booking. In Taiwan, the initial success of the now ubiquitous health Smart Card required limitations on the amount and type of information each cards holds.

Dr. Ser Kiat Tan (far right), CEO of Singapore General Hospital, demonstrated the hospital's paperless records system to HIT Workgroup participants on November 3, 2006. Also pictured (from left to right) are Robert Hawkins, Jilan Liu, and Vikram Kumar.