

From Silos to Systems: An Overview of eHealth's Transformative Power



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Rockefeller Foundation Report

Making the eHealth Connection:

Global Partnerships, Local Solutions

Bellagio Center Conference Series

President's Letter



The Rockefeller Foundation shapes and supports innovative solutions to some of the world's most critical challenges. Few of these solutions are more encouraging than those emerging in the field of eHealth. As wireless connectivity rapidly increases globally, information and communications technology unleashes the potential not only to improve the quality and efficiency of health care, but also to bridge divides between services and the people who most need them.

During the summer of 2008, the Rockefeller Foundation hosted *Making the eHealth Connection: Global Partnerships, Local Solutions*, a month-long conference series at our Bellagio Center. While gathered there, more than 200 experts, working across disciplines and sectors, set and championed a new agenda to expand use of technology in health systems—one crucial component of the global health community's strategy to make modern care more accessible and affordable for all.

This report, "From Silos to Systems," arises from that series of convenings. It advocates for stronger leadership, coordinated financing and policy, collaborative networks, public-private partnerships, and greater attention to interoperability. It informs our ongoing investments in projects including Rwanda's endeavor to level up computer literacy nationwide, health planning at Kigali Institute of Science and Technology's work to establish an eHealth center of excellence, which will serve as a regional anchor of research, teaching, and learning.

The Rockefeller Foundation's support for eHealth is part of our five-year, \$100 million Transforming Health Systems initiative, which helps low-income countries—beginning with Ghana, Rwanda, and Vietnam and Bangladesh—steer their fast-evolving health systems toward better performance and universal coverage. Our initiative also fosters professional stewardship of national health systems and engages the private sector in providing and financing health services for low-income families.

Almost a century ago, John D. Rockefeller, Sr., committed his foundation to addressing the diseases that he called "the supreme ill of human life." During subsequent decades, our predecessors led campaigns against scourges of the poor, including malaria and hookworm, and helped establish the field of public health in the process. They earned a Nobel Prize for their discovery of a yellow fever vaccine. They mobilized a worldwide effort to align public-private partnerships that accelerate the search for vaccines and medications to end HIV/AIDS, tuberculosis, and other illnesses.

Today, we forge boldly into the 21st century's second decade with our eyes fixed on a new generation of health challenges and opportunities. As the Foundation has since its inception, we nurture innovations that can help more people lead healthier, more resilient, and more productive lives. Because of dramatic advances in technology and communications, tools like eHealth can connect people and communities with better care at lower cost. We welcome and value your partnership in spreading their promise.

Judith Rodin
January 2010

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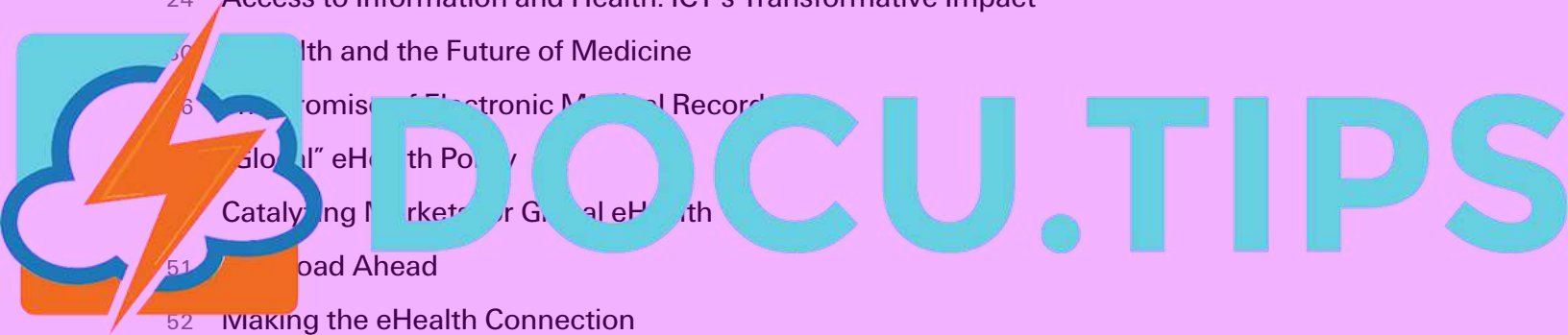
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From Silos to Systems

Introduction

eHealth: An Introduction

eHealth: An Introduction

Despite good intentions, health systems across the globe are unable to deliver high-quality, affordable services to all. Thirty thousand children die each day needlessly of preventable disease. Quality of care is substandard. Sick patients—if they can get to a clinic and afford treatment—face long waits. Critical health information is buried in thick medical files, and facilities are plagued with severe shortages of those who can heal. Inequities in the provision of health care are the greatest challenge currently facing global health—and the demand is only amplified in the developing world.

These handicaps severely impede people's economic development. The World Health Organization (WHO) recently noted that countries, particularly those in Africa, will not develop economically and socially without substantial improvements in the health of their people. The economic shifts of the past few years have further contracted economic growth worldwide and affected developing countries unduly. The World Bank predicts a \$700 billion shortfall in emerging markets, for example. If anything positive can be said about the global recession, it is that it more deeply binds the fate of nations together and provides momentum for new and systemic approaches to persistent cross-border challenges.

Experts agree that it will take an unprecedented transformation to reverse the tide of failing health systems, particularly in light of shrinking resources that must now be used more efficiently. Fortunately, support is increasingly available through a set of breakthrough tools known as eHealth, commonly understood to be the innovative application of emerging information and communications technology in health systems.

eHealth includes a broad range of implements, such as electronic health records, information-gathering software, mobile devices, e-learning tools and horizon technologies that defy human imagination. Combined, these tools can narrow health disparities, equip health care providers and enable immense leaps in quality of care. For example, a nurse in a remote village—through her laptop and mobile phone—can now access information on the world's best treatments, previously only available to the rich and privileged, and can track and treat her patients using longitudinal electronic health records.

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Growing numbers of experts believe that eHealth will fuel the next breakthroughs in health systems improvement, from Johannesburg to Jakarta. Recognizing both the promise and the challenges of these emerging technologies, the Rockefeller Foundation has launched an effort to identify new solutions to eHealth and health system improvement with a spotlight on low-resource settings.

eHealth Around the Globe

eHealth deployment is moving forward on every continent and often in low-resource areas where it might be least expected. Technological breakthroughs are happening precisely because the trials and health needs in these places are so pressing and solutions are so few. Some examples include telemedicine networks in Bangladesh; e-pharmacy projects in Malaysia; low-cost, sustainable electronic health records for HIV/AIDS patients in Kenya; and web-based communication tools



to decrease maternal and child deaths in Peru. In the industrialized world, meanwhile, multiple national initiatives are underway, such as the creation of an electronic health records system in Australia, the linking of interoperable health information technology in the United States, and the development of a large electronic health record for every individual in the United Kingdom.

Discussions about creating new eHealth systems are now truly transnational, transcending the boundaries of geography as well as the boundaries of organizations. Mounting evidence suggests that countries—regardless of their political leadership, gross domestic products (GDPs) or health-insurance systems—share common eHealth challenges. Among them are the need for clear business and funding cases, strong stakeholder engagement, documented best practices, cooperation between business and government, integration of local perspectives, affordable open-source options, and workable approaches to interoperability, privacy and security.

International agencies are beginning to ramp up eHealth activities as a way to improve global health, overhaul health systems and support the United Nations Millennium

Development Goals. The World Health Organization has adopted Resolution WHA58.28, which urges member states to develop long-term strategic plans for health services. The 3-nation Commonwealth Secretariat and the Commission for Africa have established Health Programs. The European Union has an eHealth action blueprint in place to achieve borderless trans-European health information systems by 2010. And the Group of Eight largest industrialized countries, plus Russia, have launched a Providing for Health Initiative, or P4H, as an international platform for dialogue and collaboration on health-systems issues, including eHealth.

Despite the wonders and continued progress of eHealth, an international public-private sector framework for understanding and moving forward on these issues is not yet in place. Consensus on how health technology can proliferate in the absence of traditional business models and methods for it to communicate across institutions or continents—known as interoperability—is not a reality in most places. Although incredible amounts of information about health can be electronically collected and analyzed, it is often not integrated for a complete picture of health. And policy options and funding to support eHealth projects are often inadequate and unaligned.

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Making the eHealth Connection: Global Partnerships, Local Solutions

A key milestone in the Rockefeller Foundation's endeavor to improve health systems was the month-long *Making the eHealth Connection: Global Partnerships, Local Solutions* conference series held during July and August 2008 at the Foundation's Bellagio Center in Italy. For 50 years, the Bellagio Center has been a place for developing bold ideas and initiatives to "promote the well-being" of humanity, as John D. Rockefeller, Sr., intended when he established the Foundation itself in 1913. In keeping with this tradition, the eHealth conference series convened some of the world's best minds to collaborate on devising innovative methods of using the newest digital technologies to improve health care in developing countries—an area frequently referred to as the Global South.

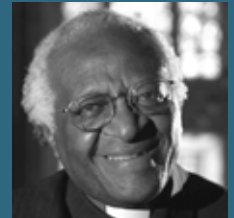
At the 2007 meeting in Pocantico, New York, global health leaders made recommendations for addressing the challenges of health systems. And at the *Making the eHealth Connection* conference, attendees took action on these recommendations. The event was squarely within the Rockefeller Foundation's broader commitment to engage partners with diverse perspectives in meaningful alliances, while encouraging new products, processes and practices that empower beneficiaries to cultivate and spread progress in their communities and countries.

The *Making the eHealth Connection* conference occurred at a very important point in time, with wireless and mobile technology at a tipping point. Key countries in South America, Sub-Saharan Africa and Southeast Asia are committed to major eHealth endeavors. With countries including Brazil, Thailand, and Rwanda on board, other developing nations are poised to follow suit. Experts say that now is the optimal moment for eHealth to have the greatest impact, and they stress that agreed-upon direction at an international level is sorely needed.

Designed to be a consensus launching pad and a networking hub, the *Making the eHealth Connection* conference series provided a neutral, information-rich locale where passionate people and organizations could work together to begin to achieve real technology and health breakthroughs. Attendees explored pathways for new investment and new policies, coming away with a new determination to revitalize health systems in developing countries.

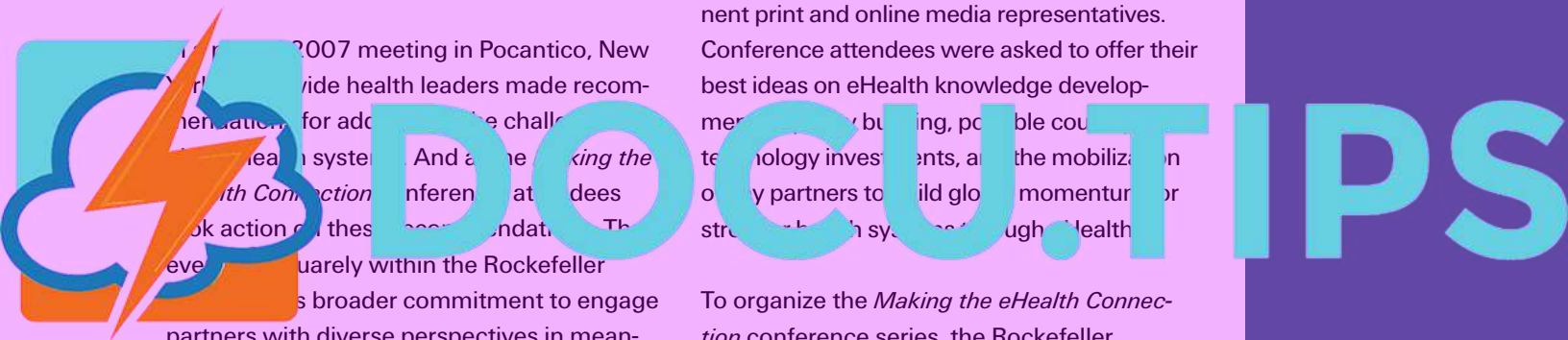
Ensuring that every voice would be heard, conference dialogue was shaped around the articulated needs of those who are active on the ground as health technology implementers, policymakers and funders in developing countries. Two hundred experts participated in the *Making the eHealth Connection* conference series, including representatives from 34 developing nations, 32 donors and 10 prominent print and online media representatives. Conference attendees were asked to offer their best ideas on eHealth knowledge development, building, possible country technology investments, and the mobilization of key partners to build global momentum for strengthening health systems through health

To organize the *Making the eHealth Connection* conference series, the Rockefeller Foundation joined forces with leading institutions in health, international development, and information and communications technology (ICT), including the American Medical Informatics Association (AMIA), International Medical Informatics Association (IMIA), Health Level Seven (HL7), Health Metrics Network (HMN), the Latin American and Caribbean Center on Health Sciences Information (BIREME), Partners in Health (PIH), the Regenstrief Institute, the Telemedicine Society of India, the United Nations Foundation (UNF), Vodafone Group Foundation Technology Partnership, the University of Washington's Center for Public Health Informatics (CPHI) and the World Health Organization (WHO).



The Most Reverend Desmond Tutu, Archbishop Emeritus of Cape Town, South Africa

"eHealth is truly a disruptive technology... rendering former geographic and economic barriers meaningless."



The action-oriented *Making the eHealth Connection* conference agenda included discussion in eight key areas, all designed to provide seasoned eHealth advice and road maps for delivery of health services and information in a fundamentally different way throughout the developing world:

- ▶ Public health informatics and national health-information systems
- ▶ Interoperability
- ▶ Access to health information and knowledge sharing
- ▶ Health informatics and eHealth capacity building
- ▶ Electronic health records
- ▶ Mobile health and telemedicine
- ▶ eHealth markets
- ▶ National eHealth policies

Each week, *Making the eHealth Connection* participants attended one of two parallel conferences with joint plenary and keynote speaker sessions. Subject tracks comprised 10 to 30 world experts from important stakeholder groups—industry, doctors, governments, researchers, and civil society—to focus on a specific area of eHealth. Participants examined eHealth obstacles, potential solutions and successful sustainability models.

Outcomes from the conference were expected to inform both national and international eHealth agendas and result in ideas and products to drive a marked increase in eHealth dialogue and action.

From Talk to Action: A New eHealth Paradigm

Along with providing eHealth education and informing future eHealth dialogue, this booklet is intended to promote the findings of the *Making the eHealth Connection* conference within the broader health, development and technology communities. The booklet, organized by conference session, features agreed-upon recommendations for necessary actions and policy priorities that can guide the development and implementation of global, national, regional and local eHealth and health systems. These testimonials represent stakeholders' substantial commitment to improve health and decrease disparities by promoting innovative eHealth solutions.

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Overall, through the opening of the official Beijing eHealth Call to Action that has been taken by global institutions, individuals and governments with the power to change eHealth policy and practice—*Making the eHealth Connection* conference participants



committed themselves to promoting and supporting the following:

- ▶ Timely, consensus-based global agenda setting
- ▶ A rational policy process for eHealth
- ▶ Adequate and coordinated funding
- ▶ Collaborative networks and action platforms
- ▶ Knowledge sharing and capacity building
- ▶ Interoperable eHealth demonstration projects

To date, more than 240 individuals have signed the Bellagio eHealth Call to Action, which was launched by Cape Town Archbishop Emeritus Desmond Tutu, who calls eHealth “a ray of light on the horizon for the health and equity challenges that plague humanity.”

Making the eHealth Connection recommendations about what must be done across countries and by those involved in eHealth include:

- ▶ Keeping in mind that the ultimate goal of eHealth could be to strengthen health systems and improve people's health
- ▶ Understanding the impact of eHealth on access, affordability and quality of health services
- ▶ Supporting collaboration and innovation between resource-constrained countries and other countries, with the understanding that the equator is not the dividing line for innovation
- ▶ Reducing donor fragmentation and harmonizing donor requirements and reporting
- ▶ Developing the ICT “business case” to increase donor and stakeholder involvement
- ▶ Strengthening stakeholder collaboration
- ▶ Providing funding for demonstration projects, reference implementations and adequate evaluation

Other recommended strategies to address common eHealth policy and organizational, technical, legal, financing and sustainability challenges conceived at the *Making the eHealth Connection* conference series are also highlighted in this booklet. These include:

WE-CAN⇒ Form a World eHealth Collaborative Network (WE-CAN) to enable eHealth ideas and priorities to flow from the bottom up and from the top down

GLOBAL eHEALTH CONVENTION⇒ Engage in a global eHealth convention process aimed at providing an overarching legal and regulatory framework for eHealth, beginning with interoperability issues

CULTIVATE INTEROPERABILITY CULTURE⇒ Promote government adoption of an interoperability and standards culture in relation to eHealth

OPEN STANDARDS/OPEN SOURCE⇒ Make open standards and open-source software freely available

UNIVERSITY-BASED INFORMATICS NETWORKS⇒ Create a network of regional health informatics centers, in resource-constrained countries, with mechanisms for collaboration between universities in the developing and the developed world

SHARED OPEN-ACCESS INFORMATION SPACE⇒ Create a shared space using social-network and open access approach to enable common producer intermediaries and users to develop and share content, methods and technologies

mHEALTH ALLIANCE⇒ Seed a mobile-health alliance to track, leverage and shape the rapid growth in the mHealth sector

EMR TOOLKITS AND TRAINING⇒ Create an EMR toolkit and foster support for local EMR training and capacity building

NATIONAL eHEALTH COUNCILS⇒ Support National eHealth Councils and eHealth ambassadors/advocates, particularly from the developing world

GLOBAL eHEALTH ENTREPRENEUR COMMONS⇒ Design a global eHealth commons and an eHealth promotion network to support financing and matchmaking among eHealth entrepreneurs and donors



His Excellency Paul Kagame,
President, Republic of
Rwanda

“There has been a tendency in the past to consider ICT solutions as elitist, stand-alone projects that are implemented to the expense of more developmental pursuits.

Rwanda's Health experience illustrates a revelation; namely that

ICT is a powerful tool and agent for drastically improving health care delivery to ordinary folks and even in the remotest parts of our country.”

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