



Report on the Global Health Information Forum

Prince Mahidol Award Conference

2010

27 – 30 January 2010
Bangkok, Thailand

Global Health Information Forum

Table of Contents

5	Background of the Prince Mahidol Award
7	Prince Mahidol Award Laureates
12	Message from Chairs of the International Organizing Committee
16	Prince Mahidol Award Conference 2010 The First Global Health Information Forum
20	Keynote Speakers
30	Plenary Session 1 Health Information Systems: the Case, their Value, the Current and Future Challenges
34	Parallel Session 1.1 Renewing Policy and Legislation for Health Information
38	Parallel Session 1.2 Tracking and Communicating Public Health Emergencies from the Front Lines
41	Parallel Session 1.3 Informing the Response to Chronic Diseases
47	Parallel Session 1.4 Generating Global Evidence: Births, Deaths and Causes of Death
50	Parallel Session 1.5 Choosing and Using Standards for Interoperable Information Systems
53	Plenary Session 2 Stepping Up to the Plate : Who Does What to Improve Health Information for Monitoring Health-Related Goals?
56	Parallel Session 2.1 Tracking Country Health Systems Performance

Global Health Information Forum

Table of Contents

61	Parallel Session 2.2 Financial and Human Resources for HIS
65	Parallel Session 2.3 Universal Access to Health and Health Services : Essential Information to Track Progress and Support Management. From Measuring Inputs to Measuring Impact?
68	Parallel Session 2.4 Public Stewardship of Private Providers :The Role of Health Information Systems
72	Plenary Session 3 Enhancing Global Security : Information Systems as the Foundation of Pandemic Preparedness and Response
76	Parallel Session 3.1 Improving Transparency Through Collaboration across Sectors
79	Parallel Session 3.2 Exploring the Frontiers of Health Information in a Petabyte Age
82	Parallel Session 3.3 Measuring the Un-measurable : Death, Disease, Health and Happiness
85	Parallel Session 3.4 Harmonizing Multiple Health Information Systems through Effective System Analysis and Design
88	Parallel Session 3.5 Managing Complex Data in Health Crises: Challenges for National Health Information Systems
91	Call to Action
95	Annex I : Conference Organizing Committee Members
100	Annex II : Conference Speakers, Chairs, Moderators and Rapporteurs

Background of the Prince Mahidol Award

The Prince Mahidol Award was established in 1992 to commemorate the 100th birthday anniversary of Prince of Mahidol of Songkla, who is recognized by the Thais as 'The Father of Modern Medicine and Public Health of Thailand'.

His Royal Highness Prince Mahidol of Songkla was born on January 1, 1892, a royal son of Their Majesties King Rama V and Queen Savang Vadhana of Siam. He received his education in England and Germany and earned a commission as a lieutenant in the Imperial German Navy in 1912. In that same year, His Majesty King Rama VI also commissioned him as a lieutenant in the Royal Thai Navy.

Prince Mahidol of Songkla had noted, while serving in the Royal Thai Navy, the serious need for improvement in the standards of medical practitioners and public health in Thailand. In undertaking such mission, he decided to study public health at M.I.T. and medicine at Harvard University, U.S.A. Prince Mahidol set in motion a whole range of activities in accordance with his conviction that human resources development at the national level was of utmost importance and his belief that improvement of public health constituted an essential factor in national development. During the first period of his residence at Harvard, Prince Mahidol negotiated and concluded, on behalf of the Royal Thai Government, an agreement with the Rockefeller Foundation on assistance for medical and nursing education in Thailand. One of his primary tasks was to lay a solid foundation for teaching basic sciences which Prince Mahidol pursued through all necessary measures. These included the provision of a considerable sum of his own money as scholarships for talented students to study abroad.

After he returned home with his well-earned M.D. and C.P.H. in 1928, Prince Mahidol taught preventive and social medicine to final year medical students at Siriraj Medical School. He also worked as a resident doctor at McCormick Hospital in Chiang Mai and performed operations alongside Dr. E.C. Cord, Director of the hospital. As ever,

Prince Mahidol did much more than was required in attending his patients, taking care of needy patients at all hours of the day and night, and even, according to records, donating his own blood for them.

Prince Mahidol's initiatives and efforts produced a most remarkable and lasting impact on the advancement of modern medicine and public health in Thailand such that he was subsequently honoured with the title of "Father of Modern Medicine and Public Health in Thailand".

In commemoration of the Centenary of the Birthday of His Royal Highness Prince Mahidol of Songkla on January 1, 1992, the Prince Mahidol Award Foundation was established under the Royal Patronage of His Majesty King Bhumibol Adulyadej to bestow international awards upon individuals or institutions that have made outstanding and exemplary contributions to the advancement of medical, and public health and human services in the world.

The Prince Mahidol Award will be conferred on an annual basis with prizes worth a total of approximately USD 100,000. A Committee, consisting of world-renowned scientists and public health experts, will recommend selection of awardees whose nominations should be submitted to the Secretary-General of the Foundation before May 31st of each year. The committee will also decide on the number of prizes to be awarded annually, which shall not exceed two in anyone year. The prizes will be given to outstanding performance and/or research in the field of medicine for the benefit of mankind and for outstanding contribution in the field of health for the sake of the well-being of the people. These two categories were established in commemoration of His Royal Highness Mahidol's graduation with Doctor of Medicine (Cum Laude) and Certificate of Public Health and in respect to his speech that:

“True success is not in the learning, but in its application to the benefit of mankind”.

The Prince Mahidol Award ceremony will be held in Bangkok in January each year and presided over by His Majesty the King of Thailand.

Prince Mahidol Award

Prince Mahidol Award Laureate for the Year 2009 Award in Medicine

Professor Anne Mills is a world leader in the development and application of economic tools to improve policymaking and practice of the healthcare systems. Her work influences major health policies, both at national and international levels, by demonstrating that “proper investments in medicine and public health will have major impact in economic growth and social equality”.

Professor Anne Mills identifies the formative influence of family and work experience on her goals, aspirations and career development. She analyses three strands of achievement - knowledge generation through developing and applying tools of economic analysis to improve health policy and practice; translating evidence and influencing global health policy; and strengthening individual and institutional capacity in health economics in low and middle income countries.

Professor Anne Mills



*Professor of Health
Economics and Policy*

*Head of Department of
Public Health and Policy*

*Director, Health Economics
and Financing Programme
(HEFP)*

*London School of Hygiene
and Tropical Medicine*

*University of London, United
Kingdom*

Her concern throughout her career has been to generate knowledge from in-depth involvement with country research collaborators and to support the translation of this knowledge into national and global policy. She provides a number of examples, including that of economic analysis of malaria control where in the 1980s her work produced evidence of the value of continuing to invest in malaria control in Nepal, and in the late 1990s her research group produced convincing evidence of the cost-effectiveness of existing malaria control measures in Africa, providing the economic case for the creation of Roll Back Malaria.

Most recently she has played a key role in the Taskforce for Innovative International Financing for Health Systems which has led to increased global and national financial commitments to health systems. She highlights the vital role that strong national capacity in health economics can play in policy development, using universal coverage of health care in Thailand as an example.

Prince Mahidol Award Laureate for the Year 2009 Award in Public Health (joint award)

Dr. Wiwat Rojanapithayaorn, while serving as Director, Office of Communicable Disease Control Region 4 in Ratchaburi Thailand in 1989, initiated the “100% Condom Use Programme” which has been recognized worldwide as one the most successful HIV/AIDS prevention tools.

One of the main reasons for the rapid HIV spread in Asia has been the massive transmission through sex work. Therefore, effective interventions to prevent transmission among sex workers and clients are necessary. Many strategies have been implemented to prevent HIV transmission in sex work, such as promotion of medical care for sexually transmitted infections (STI), health education and public condom promotion campaigns. The most significant approach seems to be the “100% Condom Use Programme (CUP)”. Since its creation in 1989, the programme has been implemented in Thailand, Cambodia, Vietnam, China, Philippines, Myanmar, Mongolia and Laos.

**Dr. Wiwat
Rojananpithayakorn**



*World Health Organization
Representative, Mongolia*

*Former First Director,
Prevention and Control of
AIDS Center,*

*Ministry of Public Health,
Thailand.*

The main principle is to promote the practice of “no condom-no sex” in all types of sex work through collaboration among local authorities, sex business owners and sex workers. Sex workers are empowered to refuse sex without condom use. In Thailand, the programme has increased the condom use from 14% in early 1989 to over 90% since 1992 ; which resulted in the rapid decline of HIV and STIs in the general population. It was estimated that by 2004 the programme had already prevented over 5 million HIV infections in Thailand. In addition, over 15 million STI infections were estimated to have been prevented by the programme. Significant prevention impact was also observed in Cambodia, Myanmar and other implementing countries.

It is widely accepted that the 100% condom use programme has prevented enormous detrimental health and social consequences that would have occurred among millions of individuals who would otherwise have been infected with HIV and STIs if the programme had not been developed. In addition, the programme was estimated to have saved billions of dollars, the fund that would have been needed to cover the direct and indirect cost of AIDS.

Prince Mahidol Award Laureate for the Year 2009 Award in Public Health (joint award)

Mr. Mechai Viravaidya founded the Community-based Family Planning Services in 1974, currently known as the Population and Community Development Association (PDA), to provide family planning education for the rural women. His tireless promotion of the use of condom to prevent pregnancy through the unique communication campaigns has demystified condoms, previously a taboo subject and unspoken issue in the public, to become commonly-use item. He is known as Mr. Condom and condoms are commonly referred to by his name.

In the late 1960s, Thailand experienced rapid population growth, yet the government of the day was reluctant to approve proposals that would halt this unsustainable population increase. Mechai Viravaidya recognized that serious and dramatic changes were needed to position Thailand with realistic potential for a reasonable future.

Together with the Ministry of Public Health, he launched many innovative programs and approaches to desensitize contraceptive use and to make them available in every corner of the Kingdom. In the mid-1980's, when HIV reared its head in Thailand, Mechai recognized the need to act once again and similar principles to the family planning program were applied. Both the population problem and the HIV problem that afflicted Thailand have, according to international judgment, been successfully handled.

Mr. Mechai Viravaidya



*Founder and Chairman of
the Board of Directors*

*Population and Community
Development Association,
Thailand*



Message from Chairs of the International Organizing Committee



Dr. Vicharn Panich

Chair

*Chairman
Mahidol University Council
Bangkok, Thailand*



Dr. Sally Stansfield

Co-Chair

*Executive Secretary
Health Metrics Network
Geneva, Switzerland*



Dr. Timothy Evans

Co-Chair

*Assistant Director General
Information Evidence and
Research
World Health Organization
Geneva, Switzerland*

Global efforts to achieve the Millennium Development Goals (MDGs) by 2015, combined with resolutions to enhance the impact and sustainability of development aid, have placed the health systems of developing countries under increasing scrutiny. A strong, integrated health information system is the cornerstone of an optimal health system, vital for the collection of data and generation of information necessary for health and development workers at all levels to make best use of the finite resources available to them.

Getting the right information, at the right time, into the hands of doctors and nurses in towns and villages, and officials and policy makers in Ministries of Health and international development agencies enables them to make informed decisions and account for their actions and expenditures. In fact, where public health is concerned, the difference between good and poor decisions can mean life or death.

While the lack of reliable information on the causes of sickness and death presents a major obstacle for governments intent on improving the health of their people, establishing and maintaining a successful health information system is far from simple. It requires steady and long-term commitment and investment from a network of partners, working towards a common goal. Yet despite these challenges, success stories are emerging around the world and there are many lessons and best practices to be shared with other countries that decide to embark along the same path.

This year, the Prince Mahidol Award Conference has joined forces with international partners including the Health Metrics Network, the World Health Organization, the World Bank, and the Rockefeller Foundation to host the Global Forum on Health Information to highlight the achievements and challenges to date. This conference follows commitments made at the G8 meeting in July 2008 on Health Systems Strengthening for which health information systems is one of the three pillars (two others are health financing and human resource for health), which created a strong impetus to enhance health information systems in developing countries.

As Chairs of the International Organizing Committee, we were delighted to welcome you to Bangkok, to join more than 400 fellow information experts and champions from within and beyond the health sector. We encouraged your lively participation and debate to help shape and deliver the following desired outcomes of the conference:

1. To promote a shared understanding of the value of strong health information systems for MDG reporting, emergency preparedness and response and to transform the performance of health systems.
2. To identify and better understand gaps in the development of health information systems and evaluate specific opportunities to enhance their performance.
3. To agree a priority agenda of action for strengthening health information systems, drawing on a broader and stronger collaboration among diverse stakeholders.

Highlights included demonstration of the value of strong health information systems, the role of health information in pandemic preparedness and response and spotlights on key players responsible for improving health information for health-related goals. Many also took the opportunity to attend the special side meetings, Marketplace events and also site visits, where they were able to witness Thailand's health information systems first-hand.

We would like to thank the many individuals and organizations that came together to make this conference a success, in particular the international partners, the Prince Mahidol Award Foundation and the Royal Thai Government. We would also like to express our thanks to the Secretariat Team that had worked so hard over many months to plan and prepare for the conference.

We hope that all the participants left Bangkok with renewed energy and enthusiasm to work together to achieve our shared goal of better information, better decisions and better health for all.



Conference Overview

Keynote Speeches

Plenary Session 1:
Health Information Systems: the case, their value, the current and future challenges

Plenary Session 2:
Stepping up to the plate: who does what to improve health information for monitoring health-related goals?

Plenary Session 3:
Enhancing global health security: information systems as the foundation of effective pandemic preparedness and response

Parallel Session 1.1 : Renewing policy and legislation for health information

Parallel Session 1.2 : Tracking and communicating public health emergencies from the front lines

Parallel Session 1.3 : Informing the response to chronic diseases

Parallel Session 1.4 : Generating global evidence: births, deaths and causes of death

Parallel Session 1.5 : Choosing and using standards for interoperable information systems

Parallel Session 2.1: Tracking country health systems performance

Parallel Session 2.2: Financial and human resources for HIS

Parallel Session 2.3: Universal access to health and health services : Essential information to track progress and support management.

Parallel Session 2.4: Public stewardship of private providers : The role of health information systems

Parallel Session 3.1: Improving transparency through collaboration across sectors

Parallel Session 3.2: Exploring the frontiers of health information in a petabyte age

Parallel Session 3.3: Measuring the un-measurable: death, disease, health and happiness

Parallel Session 3.4: Harmonizing multiple health information systems through effective system analysis and design

Parallel Session 3.5: Managing complex data in health crises: challenges for national health information systems

Conference Synthesis Session: Summary, Conclusion and Policy Recommendations

Call to Action

Prince Mahidol Award Conference 2010

The First Global Health Information Forum

“In 2010 a ‘Call to Action’ on Health Information System (HIS) was launched to fully support and recognize that HIS strengthening is critical to improving global health. To ensure effective coordination, the Health Metrics Network, the Prince Mahidol Award Conference, with support of the World Health Organization, the World Bank, the Rockefeller Foundation and other partners, held the Global Health Information Forum dedicated to bringing stakeholders together and providing a platform for a renewed energy and commitment to investing in and building the capacities of health information systems.”

Background

Accurate information provides a foundation for sound decision-making. Where public health is concerned, the difference between good decisions and poor decisions can mean the difference between life and death. The lack of reliable information on the causes of sickness and death is a major obstacle for any attempt to improve the health of people in developing countries. Health information is essential to track the health needs of populations, to guide the design and implementation of health programmes, and to assess what works and what does not.



To set up and maintain a successful health-information system is a considerable task, requiring a network of national and international development partners, working towards a common goal. Several partners including the Health Metrics Network, the World Health Organization, the World Bank, the Rockefeller



Foundation and the Prince Mahidol Award Conference have held the first Global Conference on Health Information Systems. This conference was in line with the commitment by the G8 meeting in July 2008 on Health Systems Strengthening which focused on Health Information Systems, Human Resources for Health and Health Care Financing. This commitment had produced a strong impetus to the movement to further strengthen HIS.

Global HIS Forum Objectives

Four core objectives are proposed:

1. Firmly position HIS as a strategic driver of health systems strengthening and performance management of broader development outcomes.
 - Highlight the benefits of strong HIS and their potential role in transforming the effectiveness of health systems and the performance of multisectoral development outcomes
 - Raise awareness of past neglect of this area of health and the consequences, especially in developing countries (e.g. reporting burden on countries, national variances in attitudes towards HIS, lack of technical consistency, lack of ways to share best practices, impact on allocation of results-based global health funds)
 - Highlight the importance of HIS to manage performance, monitor and evaluate progress towards the MDGs (reference to MDG reporting in 2010), and monitor the effectiveness of donor health funding.

2. Broaden and unite the constituency of potential allies behind a shared vision and action plan for HIS strengthening.
 - Broaden the diversity and interaction of groups engaged in HIS: health, finance, information technology, civil society, and others
 - Raise visibility of the cause and the breadth of engagement to a higher level
 - Inspire broad social movement necessary to achieve progress in HIS
 - Identify ways for different partners to work together and contribute their unique strengths towards a common goal
 - Promote key HMN values: partnership, country leadership, transparency, coherence, sustainability, empowering.
3. Showcase HIS progress and capacity-building in developing countries.
 - Outline critical elements for success: political leadership and champions; technological leadership and innovation; expert consensus around the approach; management that effectively uses the information; sufficient financial resources
 - Highlight the HMN Framework and Strategy, and the catalytic role of HMN in improving HIS
 - Highlight key investments and results to date
 - Highlight the major challenges, gaps and common ground for future progress
 - Announce awards for major HIS successes and champions.
4. Secure high-level commitment to drive future action.
 - Highlight relevant commitments and endorsements to date (e.g. WHA endorsement of the HMN Framework in 2007)
 - Create a shared understanding of the potential of HIS
 - Public declaration of support for HIS through a 'Call to Action'.



Outcomes

- Ensure HIS has prominent place on health and development agendas
- Capacity of the HMN Network goes to scale
- Recognition for HMN's enabling role, and progress to date in individual countries
- Broad understanding among stakeholders of the potential of HIS to improve the effectiveness of public health expenditure and actions
- High-level 'Call to Action' of commitment to HIS and proposed path forward
- Outcome document reporting accomplishments of the Forum, follow-up actions, and a Marketplace publication of emerging good practice in HIS.

The First Global Health Information Forum :

Keynote Speakers



Professor Anne Mills

*Professor of Health Economics and Policy
Head of Department of Public Health and Policy
Director, Health Economics and Financing
Programme (HEFP)
London School of Hygiene and Tropical Medicine
University of London, United Kingdom
Prince Mahidol Laureate 2009*

Your Royal Highness Princess Maha Chakri Sirindhorn, Professor Keizo Takemi, fellow PMAC awardees, honourable participants, ladies and gentlemen.

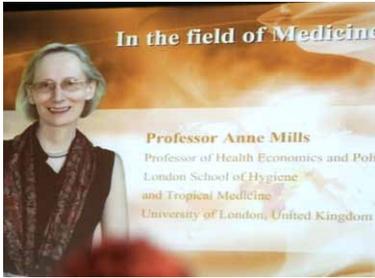
I am greatly honoured to stand before you, for two main reasons. Firstly, I would like to express my enormous sense of appreciation in receiving the Prince Mahidol Award. I regard this as recognition not just of my own work but more broadly of the efforts of a large group of people around the world, including here in Thailand, to develop the discipline of health economics and apply it to the benefit of countries and people worldwide. Secondly, I am greatly honoured to have this opportunity to address you at the opening of this vital first Global Conference on Health Information Systems.

I do not regard myself as an expert on health information per se. However, as a health systems researcher and advocate, information is inextricably bound up with my concerns. I thought therefore that in these few minutes, I would address the subject of the role of information in strengthening health systems, drawing on my experience both at global and national levels of seeking to study and inform health system strengthening processes.

I realise that I may depart from what much of this conference focuses on, information on health status, but information on health systems itself and its functioning is critical if the health system is to play a role in improving health outcomes.

Evidence has been accumulating of the weaknesses of health systems, especially in low income countries though even middle income countries are not at all immune to these problems. Both the Commission on Macroeconomics and Health, and the more recent High Level Taskforce on Innovative International Financing for Health Systems, highlighted the constraints to equitable and efficient health system functioning. Because of the strong recent interest in delivery of interventions such as ARV treatment, or malaria control, there has been a tendency to focus specifically on problems and constraints in service delivery. However, the health system is made up of many inter-relating and mutually dependent parts, so I find it helpful to seek to understand constraints at various levels. Functioning at the level of service delivery may be affected by circumstances at the level of households and community - for example lack of physical or financial access to health services, or lack of information of the benefits of health services. The service delivery level is also strongly affected by the systems higher up - for planning, management, and supervision, and for recruiting and paying staff. Beyond the national level there are influences at the global level, such as international forces affecting migration of health workers or the flow of money. At all these levels, limited availability of information, and poor quality information, are important contributing factors to poor performance.

Lack of information is equally a problem when it comes to introducing reforms intended to strengthen health systems. In the report of Working Group I for the High Level Taskforce on Innovative International Financing for Health Systems, we sought to review and synthesise the evidence on what works in relation to health system strengthening. Some commonly recommended policies include providing greater autonomy to decision making units such as hospitals and districts, in order to help them improve their efficiency; introducing means to target subsidies on the poor, for example through payment or resource allocation approaches; contracting out service delivery to Non Government Organisations in areas where government services do not exist or have difficulty extending to the poorest ; strengthening



regulation of the private sector to improve quality of care ; and implementing payment systems that provide incentives for good performance.

All these policies are crucially dependent on the availability of good quality information. The benefits of increased autonomy for decision-making units will not be realised, for example, without putting in place an effective cost accounting system. Ensuring that subsidies benefit the poor requires the ability to identify the poor and monitor whether they are indeed benefiting. The prior decision on whether or not to contract out service delivery to NGOs, or instead extend government service provision, requires comparative information on cost and quality of services. Following contract implementation, the service quantity and quality provided by contractors requires monitoring and hence flows of accurate information. Regulation is impossible without a database of private providers which is kept up to date. And approaches such as pay for performance are even more demanding. They require of course accurate information on service performance that then drives payment, but they also require information on related services that might experience unintended consequences because of the high powered incentives for providing specified services.

However, availability of information is not enough - there must also be both the ability - i.e. knowledge and skills - and incentive - to act on information. Regardless of the level of development of a country, we know that managers and decision makers often do not exploit the availability of information to improve their decision making. Or they may manipulate information to justify an already made decision, rather than using it as input to decision-making. It is thus vital that this conference address not just the availability of information but also incentives to its use. Otherwise the benefits to investment in information systems will not be fully realised.

So far I have talked about the sort of information needed to help guide the strengthening of critical elements within health systems, mainly focusing on financial and performance data. There is also

the vital question of holding the health system to account for the achievement of its ultimate goals. The WHO has defined these as better health; fairness in financial contribution; and responsiveness to people's expectations on how they should be treated, both physically and psychologically. However, there are limitations in both how these are assessed in practice, and in their scope. In practice the health and risk protection goals tend to get most attention, and better health is commonly measured through indicators related to mortality, disease, and disability rather than broader measures of health. In addition, these three goals are imperfect indicators of the benefits of a well functioning health system. As argued by the Commission on the Social Determinants of Health, a well functioning health system provides broad social benefits. The health systems of Western Europe, for example, are an important manifestation of principles of social solidarity, and through their functioning help to address social exclusion. The recent report of the Stiglitz Commission, set up by President Sarkozy of France, recently recommended happiness and well being as measures of economic progress, and included the health system, in terms of giving access to health care, as one of the key indicators.

What is measured strongly influences what is delivered and how it is delivered. Hence expanding our thinking of the goals of a health system is critical if health systems are to evolve as supportive social institutions. This then poses another important challenge for this conference, in discussing the types of information that might be most relevant in holding health systems to account for their performance as social institutions.

In conclusion, let me wish you stimulating debates and I very much look forward to the concrete recommendations coming out of the meeting.



Professor Keizo Takemi

*Senior Fellow, Global Health and Human Security, Japan Center for International Exchange, Tokai University
Former Senior Vice Minister for Health, Labour and Welfare, Japan*

Her Royal Highness Princess Maha Chakri Sirindhorn, Excellencies, Professor Anne Mills, colleagues and friends in global health, ladies and gentlemen,

I would like to take this opportunity to congratulate Professor Anne Mills, a good friend of mine. As all of us know well, Professor Mills is a pioneer in evidence-based policymaking through her excellent work on health financing, economic appraisal, and health system assessment. She is a leader in the use of evidence and information for policymaking.

It is a great honor for me to give a keynote address at the fourth annual Prince Mahidol Award Conference. I am pleased to see so many good friends here once again this year.

I. Why I agreed to deliver a keynote address at PMAC

I would like to share with you the three reasons why I have accepted this honor to make a keynote speech at PMAC. First, I have always admired my Thai colleagues who have been promoting health diplomacy. The growth of PMAC over the last three years is one concrete achievement of their endeavors. I hope that more countries will follow Thailand's approach.

Second, as a serious rugby player, I believe in joint action to achieve a common goal. PMAC provides a great platform for us - the global health community - to act together and to share our knowledge, which is even more important during this time of increasing interdependence that goes beyond national borders.

As we all know, there are many global initiatives for HSS, and it is time for us to explore how to integrate these different initiatives as well as how to integrate the different building blocks of health systems themselves. PMAC has a tremendous convening power that can be put to use in these endeavors.

Finally, our Thai colleagues and I have something in common.

I chaired the follow-up process to the Toyako G8 Summit in Japan in 2008, which brought together actors from governments, development agencies, academia, and civil society. We successfully managed to foster enough momentum to encourage global health partners to consider creating more synergy between disease control and strengthening of health systems. We were particularly encouraged by the WHO's efforts to revitalize PHC as well as the huge support that has come from various stakeholders in global health, including many of you sitting here today.

I would like to stress that the people-centered approach of the new PHC strategy is consistent with Japan's diplomatic goal of promoting human security approaches to health. In the Toyako G8 Summit follow-up process, we focused on three major building blocks for health system strengthening: information, workforce, and financing.

PMAC kindly gave us the opportunity last year to present our recommendations from that process. Later, I was informed that the PMAC secretariat had chosen the same topics for the next three conferences. I appreciate the Thai government's initiative and am pleased to report that Japan would like to support it. Japan has decided to co-host the second global forum on human resources for health at the next PMAC in 2011 through JICA. I hope that this means I can be back here again next year.

2. Why focus on information, workforce, and financing?

Now let me turn to the reasons why we focused on health system strengthening and these three key elements - information, workforce and financing - in the Toyako G8 follow-up process.

After the G8 Toyako Summit, through consultations with our colleagues in the global health field, we reached consensus on focusing on these three topics, which are important inputs to health systems: managers

and policymakers need human resources, financial resources, and information to make decisions on what a health system should do.

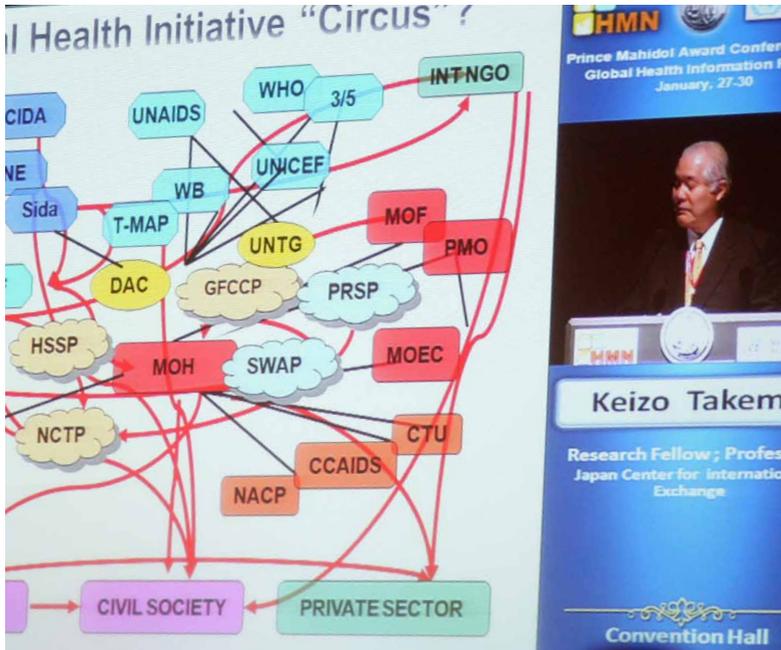
At the same time, health information is an output, providing assessments of different health system activities: how money and people are used and what they produce in terms of health outputs and health outcomes. The three components are also related to each other: money is required to hire people; those people work in the health system where they collect, analyze, and interpret health information; and the data are used by people to decide how to spend more money. The three key elements are also essential for strengthening stewardship and governance, purchasing medical products and drugs, and delivering them, which are the remaining three building blocks of health systems, as defined by the WHO.

In order to move forward the agenda of HSS and to achieve universal coverage, it is crucial that we design and agree on the mechanisms to integrate and leverage fragmented activities in each area of HSS. In order to integrate these activities, I would like to argue the importance of the human security perspective.

The conventional argument relating to health systems strengthening tends to focus on the supply side. However, it needs to be redefined from a human security perspective, and that can be advocated by Japan. A top-down approach is necessary, and governments need to make good policies to support front-line workers. Here, the front-line workers are broadly defined to include not only health workers but also sanitation workers, school teachers, and so on. This represents the protection aspect of human security.

But at the same time, a bottom-up approach is necessary, in which front-line workers keep face-to-face communication with the people in the community and build up mutual trust. Communities and the people in them should not remain as passive receivers of services but should actively participate in and support the work of front-line health workers. This represents the empowerment aspect of human security. We need to intentionally combine these two approaches in order to deliver health services to the people most in need.

To me, the fundamental issue is that many poor people continue to suffer and die because their local health facilities cannot provide



health services that they need, and regardless of what we do or how we do it, it only has value to the extent that it helps alleviate this human suffering in our communities.

In other words, as a recent Lancet editorial suggested, HSS also means "Health Service Solutions." Integrating HSS activities through a new global health architecture requires serious thought and commitment. It's very challenging but we have to do it.

I think that this can only be made possible by bringing together major stakeholders and practitioners in the global health community and sharing new ideas. PMAC is one of the best places to do that. In particular, for the next couple of years, I am confident that PMAC will serve as a catalyst in the area of HSS by focusing on health information, workforce, and financing. Once again I admire the efforts of our Thai colleagues, the PMAC secretariat, and our partners from various agencies and foundations, as they are truly innovative and instrumental to moving forward the discussion and debate we have had in the past two years since the Toyako G8 Summit.

3. Current debates on health information

The policy paper we developed for the G8 Toyako follow-up identifies a number of problems that limit the availability, timeliness and quality of evidence for decision making. Here I would like to focus on three critical factors. First, responses to data scarcity have led to a proliferation of indicators, inconsistent frameworks, and fragmented activities. Second, work is duplicated across agencies, which compete to fill the same gaps rather than coordinating their efforts. Third, many countries lack both the incentives and the capacity to collect, share, analyze and interpret good quality data.

Such problems are further aggravated by the ever-growing number of global health initiatives, too. But these challenges are not unique to health information. This familiar figure is true of health information.

4. The way forward

Again, it is time to streamline and integrate such fragmented activities and I believe that it is more efficient and feasible to tackle data than to deal with money and people, as many of you would agree.

We should finalize the common monitoring and evaluation (M&E) framework and promote joint investment in boosting the quantity and quality of data. Together with on-going efforts by the G8, the H8, the IHP+, and other partners, we have to promote the culture of independent evaluation of the impact of our investments so that the global health community is fully accountable.

I believe that the ultimate goal of the global health information community is to develop local capacity to collect high-quality data, monitor and evaluate health programs and systems, and inform policy for better health outcomes. Thanks to the leadership of the Thai government, with the support of the Health Metrics Network, the WHO, the World Bank, the Rockefeller Foundation, and other partners, we have a great opportunity today to come up with a concrete action plan to make a difference.

I look forward to the discussions we will have over the next three days and to continuing to work with all of you-both old and new friends-in the coming months and years as we continue to learn how to better promote the health of all our fellow human beings.

Around May, the UN Secretary General's report on human security will be published, and it will cover health and other thematic issues. I believe that the human-centered multisectoral and integrated approach that human security emphasizes would fit quite well in the health field.

We have also debated how to measure non-quantifiable factors. Quite similar debates have been going on regarding how to measure human security. Now is the time to move from debate to action. Right now, we are working with other G8 countries to establish a network of academic institutions to develop such capacity in Africa.

So things are happening. Decision making-whether it is local, national, or international-will always remain political but can be informed by better science and evidence, especially approaches that take into account the overall context.

As one of my good friends, Harvey Fineberg, said, we can make good policies without evidence. We can also make bad policies without evidence. But we can make better policies with evidence.

Ladies and gentlemen, I believe that information is power, but also power to make change. It is a necessary ingredient for sustaining global momentum on global health. Information is also power because it is how we learn better how to save lives.

Plenary Session I

Health Information Systems : the Case, their Value, the Current and Future Challenges



Moderator:

Richard Horton

Editor-in-Chief, The Lancet



Panelists:

Ariel Pablos-Mendez

*Managing Director
Rockefeller Foundation*

Julian Schweitzer

*Acting Vice President
The World Bank*

Sally Stansfield

*Executive Secretary
Health Metrics
Network*

Jeanette Vega

*Viceminister
Ministry of Health,
Chile*

The Key Messages from the Presentation

Strengthening HIS is not an abstract or an academic concern. It is one of the most contentious issues of our era is often argued out with the products from health information systems. Information can, and must, be the nervous system for health system strengthening.

“When you invest in information, you save money and you save lives.” *Dr. Sally Stansfield*

Country ownership was highlighted as a critical issue. The current architecture of development assistance leaves donors largely in control of resources, but countries need to be the primary owners of the facts about health status and services in their countries. Without good data about burden of disease, disaggregated to regional and local levels, there is no basis for good decision-making, at either the provider level or at the policy level.

Major Problems and Issues

1. Getting policies right.
2. Technology - tendency to be more gadget driven than need driven.
3. Need to work with unofficial users and providers of information.

We have focused in the past too much on the input side of HIS, and we now need to increasingly focus on incentives to make the systems work (e.g. results-based finance, flexibility to react locally and at institutional levels etc.). Insufficient attention has been given to identifying and documenting the success stories of countries having successfully negotiated components of HIS.

“Information is scarce”, especially when important information is produced but not captured digitally, as happens often in health care today. The key issue for countries without current extensive health information systems is to learn the lesson of interoperability at the point of investment, when it is much less expensive to implement than when systems are already built.





Suggested Solutions

A critical overall need is to monitor and to document success stories, to shed light on the way forward. We need to be applying known technologies with sustained consistency of purpose and we need to be documenting success stories which we can all learn from and follow.

What should we be investing in for HIS? Technology presents tremendous opportunities, but should not itself be the main focus. Investment needs to target the capacity of local institutions (governmental and private) to be fully engaged in their critical role of advocacy and accountability.

Key findings from the recent experience in Chile were reported by Jeanette Vega and include the priority of:

1. Monitoring solidarity of the population engendered by provision of services.
2. Monitoring the tendency of the system to be biased toward prevention and primary health care provision (this is a good bias that we want to reinforce).
3. Monitoring the actual impact of policies that are implemented, not assuming that the anticipated impacts must occur.
4. Monitor not only the average outcome of the system but the equity of outcomes.

5. Need to understand and measure the impact of social determinants of health. Otherwise, we only look narrowly at the health care system outputs, which never themselves account for all or even most of health outcomes.
6. Articulate clearly and in plain language the steps of building health information systems, moving away from technical jargon to language the population understands.

The ICT revolution gives use the opportunities to use and perform the health system as a whole, in particular the health in private sectors that have been neglected for several decades. We should focus on the opportunity for “leapfrogging through eHealth”. Furthermore, the value of information is not only for using reporting systems but also the research, medical care, policy and public health. It is our democratic imperative to put information in the hands of the citizens.



Parallel Session 1.1

Renewing Policy and Legislation for Health Information

Moderator:

Sally Stansfield

Speakers:

Karl Brown

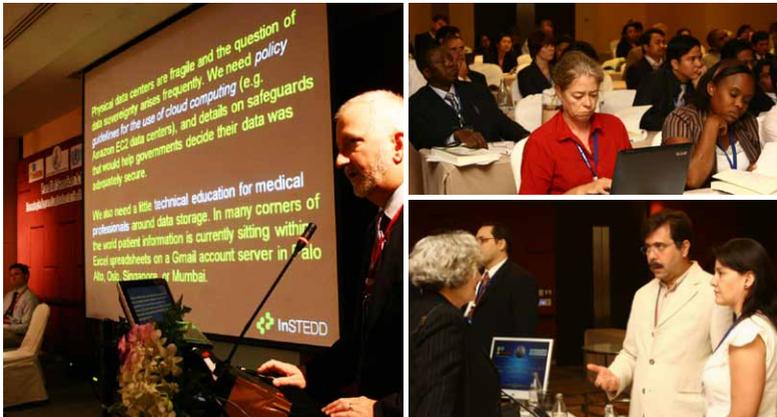
Maria Graciela Gamarra de Caceres

Michael Graven

Roger Magnusson

Eric Rasmussen

This session addressed the overall situation and trends of global policy development for Health Information Systems, and defined the parameters of Health Information Policy (including elements of governance and legislation) as well as the rationale and goal for a National HI Policy. Specifically the session examined best practices on legislation and regulations for strengthening financial resource information for health.





The Key Messages from the Presentations

There is a need for a strategic, coordinated approach to policy development

1. A sequenced method for tackling governance challenges could be telecommunication reform, e-Health reform and citizen protection/equity issues.
2. Policy and legislation involve an important choice around values and culture - individual versus population; widespread collaboration with community groups on the ground is critical, especially to engender trust.
3. There is a need to address a quickly evolving environment (for example policy guidelines for cloud computing).
4. An overarching goal should be collegial adherence to interoperability with peer consequences for misbehavior.
5. HIS implementations and policy should incorporate capacity building for in-country stakeholders and exit strategies for implementation teams.
6. Policy issues can be by far the greatest challenge in deploying HIS, often a much greater challenge than technical issues.
7. Possible HIS policy phases: Pre-deployment, deployment, early use, late use.
8. HIS bills/legislation must clarify in particular two different processes and roles: implementation and enforcement.
9. Collaboration between HIS “tribes” or sub-sects is essential.
10. Non-health and non-government actors must be leveraged and integrated into HIS strategy and policy.
11. This is a prime moment for supporting HIS policy and disseminating reusable templates.

Major Problems and Issues

1. Interoperability: Disconnect between standards development and implementation.
2. Addressing illiteracy and multi-lingualism in care delivery and policy formulation.
3. Tension between transparency and privacy.
4. Political cycles rarely last more than 2 years: hard to do long-term planning for policy administrators (changes in administration can be dangerous to already established initiatives and process).
5. Many ministry departments wish to control information flow: not always the Ministry of Health (can be Finance or Defense Ministry).
6. There are sometimes ongoing initiatives to privatize efforts (tension between public and private sector roles).
7. HIS policy makers must deal successfully with issues outside their domain.
8. HIS are complex, used and owned by many stakeholders, including the private sector, so no one entity is in control.
9. Often part time staff are doing HIS duties.
10. Developing full national capacity to report health status is difficult with limited financial and human resources; this is now often donor driven and supported.

Suggested Solutions

1. A minimum set of standards and policies should be defined for a well-functioning HIS.
2. Leadership in-country - A champion or set of champions is a key ingredient for getting efforts off of the ground.
3. Collaboration between HIS sects will enable a more unified policy and systems development process.
4. Innovative organizational networking strategies that successfully bring together diverse players.
5. Pool global knowledge on HIS.
6. A coordination body for HIS that includes the private sector.
7. Addressing stewardship of private sector data for health.
8. Incentives to comply with an agreed to set of standards and interoperability protocols.
9. Take a product approach to HIS.
10. Legislative and policy templates must be contextualized and adapted for local needs: one level with core common products, a top level with customizable components.



Discussion

The participants reiterated the necessity to support countries in their effort to draft laws and regulations on HIS policy and standards. Setting up HIS was felt to be a 3-5 year process, and donors should understand that countries need time for this important change in health data management. The use of information requires qualified human resources, and appropriate capacity-building in the public health sector is essential.

Data is power! It has the potential to increase transparency between citizens and governments. Countries should incorporate in their HIS legislative strategy requirements to report on their national health status. A public-private sector commission with a multitude of stakeholders should be contemplated in HIS policy to engage and support accountability from both sectors.

Parallel Session 1.2

Tracking and Communicating Public Health Emergencies from the Front Lines

Moderator:

Mark Smolinski

Speakers:

David Aylward

John S. Brownstein

Ta-Chien Chan

Channe Suy

Ieng Vanra

Prapas Weerapol

Rapidly expanding technologies in developing countries are allowing for real-time data collection, situation awareness, and rapid response in the field by frontline health workers. Mobile coverage in most countries now extends to rural communities and provides mechanisms such as short message service (SMS) to allow data to be integrated seamlessly into health information systems. Global positioning systems (GPS)



and interactive mapping tools are allowing for greater accuracy in assessing location and extent of outbreaks. Such 'real-time' information provides for better coordinated response in the field.

Experiences were shared on the use of innovative tools to help first responders in situational analysis and real-time communication during outbreaks or other public health emergencies. First responders from the Mekong Basin Disease Surveillance Network in Thailand shared their experiences in using GeoCHAT, a mobile communications service created by local and international IT developers from InSTEDD-Innovative Support to Emergencies, Diseases, and Disasters. GeoCHAT is designed specifically to enable self-organizing group communications in the developing world. The service lets mobile phone users broadcast location-based alerts, report on their situation, and coordinate around events as they unfold, linking field, headquarters, and the local community in a real-time, interactive conversation visualized on the surface of a map. Other mobile tools being used in the field were also highlighted.

The Key Messages from the Presentation

- Improve field reporting of structured data in a low-capacity, low-training and reliable way
- Lots of cheap technology is out there and enthusiastic users
 - Mobile is central - everyone has them (80-85% worldwide), internet is NOT everywhere
- First reporters are those with mobile phones - use them!
- Get information from the field - find out what works from them. Trust the field workers to find a solution
- Use commercial architecture from business and use it for health
- Need to make them multi-use - for supply chain, finance, inventory, long term data mining
- Emergency and pandemic situations are uses of a regular system - can't just set up a system for emergencies and disasters and expect people to use and know how to use it
- Breakdown the wall between healthcare and data reporting systems
 - Make disease identification a byproduct of daily care
- Need to expand disease surveillance systems
- Participatory epidemiology is possible - cannot underestimate the public in public health

- People are interested in their health and in contributing
- Use cheap SMS technologies to do social security efforts such as illegal drug surveillance, environmental surveillance, etc. Making it useful for many other applications will increase acceptance and support.



Major Problems and Issues

Challenges include lack of a common language, or a language that the devices use, and lack of skills in using new mobile devices.

Suggested Solutions

Grass roots solutions - ask the field workers what works for them. Use volunteers from local communities to implement new methods. An example is the “magic wheel” - some workers didn’t know English, and couldn’t get standardization. The “Magic Wheel” is used by the field staff to generate a code instead of requiring English language for disease and location, and the code is sent via SMS or Interactive Voice Response (IVR). They developed it themselves and it required little instruction to use.



“First reporters are those with cell phones.”
David Aylward



“Cannot underestimate the public in public health.” Mark Smolinski

Parallel Session 1.3

Informing the Response to Chronic Diseases

Moderator:

Rafael Lozano

Speakers:

Wichai Aekplakorn

Christopher Bailey

Rajesh Kumar

This is the moment of an abundance of data accompanied with sophisticated data collection and analysis tools. By the year 2030, non-communicable conditions and chronic diseases will cause more than three in every four deaths. Health information systems are currently poorly equipped to monitor this emerging health transition, either at the population level or in terms of individual patient management. This session sought to bridge the divided information among data responding to chronic diseases, data corresponding to bio-socio-environmental risks, and linking better data with better patient care. The session was built around core information needs for chronic diseases: disease prevalence and morbidity; risk factors; and long-term care.





The main discussion point was that countries should scale up investments in the information systems needed to track the emerging health transition and to measure and manage chronic diseases.

Information on the magnitude and distribution of chronic diseases and related risk factors is important to countries in making strategic plan to prevent the potential chronic diseases burden in the

future. The fourth National Health Examination Survey (NHES) was conveyed in Thailand (2009) to determine the prevalence of certain health conditions and risk factors, provide trend data on health, and examine the distribution of health conditions and risk factors by age, gender, geographic region and socioeconomic status. A multi-stage random sampling was applied with 30,000 samples aged 1-10 years and 15-74 years, who were not only interviewed about their risk behaviors (such as smoking, vegetable and fruit consumption, and physical activity), but also measured physical status including anthropometry, blood pressure measurement, blood lipid profile, and blood glucose. The analysis of the results showed that the prevalence of obesity and diabetes was steadily increasing, while the trends of smoking decreased in men, but it was relatively stable in women. The prevalence of hypertension was relatively constant, but the prevalence of high cholesterol increased. These prevalence were more pronounced in urban than in rural areas; however, the gap between them had become closer compared with the last survey.

The NHES data contribute to the understanding of health status and risk factors of Thai people across geographic regions and urban/rural areas by gender and age groups. It is crucial to ensure that the policy level, health professionals, and the public are informed by this information. Programs on prevention and control of obesity, hypertension and diabetes should be launched. The main challenge of the survey is how to secure budget for development of prospective plans and to sustain the survey system.



Not only genes but social and environmental factors in which people live and work also influence the risk factors of chronic diseases. Understanding the role of risk factors and their influence over the life course is important for policy formulation and implementation of disease prevention and control programs. Studies across the world have documented the associations for a range of chronic diseases and of rare diseases, and motivated the concept of bio-banks (the collection and storage of biological samples which can be of prospective or retrospective in nature). The bio-bank data contribute to vaccines, drug invention and bio-technology. Modest enhancement of this system with additional demographic and medical information, as well as reliable archiving of samples, would provide a widely practicable resource to investigate the biological correlates of HIV and other diseases. Some people consider National and Regional bio-banks are the first step. Others have called for a global consortium to address common ethical issues, data ownership, and data sharing. Efforts are ongoing to establish bio-banks that constitute large population collections across the countries.

Economic sustainability is another area of concern for establishment of bio-banks. A major roadblock is getting reliable epidemiological evidence about the relevance of variables measured to the development of the disease. Large scale epidemiological fieldwork in developing countries to acquire blood samples systematically linked to relevant measures of disability and future mortality is crucial.

Globally, we are moving from situations of acute care to chronic care, vertical disease silos to primary care approaches and condition-centric

health data management to person-centric health data management. This has significant implications for the conceptualization, design, implementation, and use of electronic information systems.

“Information is care” (Don Berwick, IHI). Good chronic care will be very dependent on interoperable systems to allow information to flow freely across the various domains and layers of a national health service. Populations are made up of individual people. It is an essential quality that must be reflected in electronic health information systems across the broader health system if they are to successfully support all aspects of chronic care, from the individual patients to national level monitoring and planning.

The Key Messages from the Presentation

Information on magnitude and distribution of chronic disease and related risk factor in populations is important to countries in making strategic plans and for control. Countries can apply health surveys accordance to the availability of their resources. The main challenge



of health information surveys is how to secure budget for development of prospective planning and sustaining the survey system.

Key supporting factors for the survey include technical and operational issues such

as standardized questionnaires, operational aspects especially human resources, budget, and quality control.

Survey data have identified the critical rise of obesity and diabetes as a public health priority in the Thai population and it is crucial to ensure that both the policy level health professionals and the public are informed by this information.

In 2020 developing countries will contribute 9/10 of burden of disease and common chronic diseases will account for almost three-quarters of deaths worldwide. The multitude of biological, social and environmental factors that may cause these disease are not yet to be discovered and understanding the role of risk factors and their influence over the life course is important for policy formulation and implementation of disease prevention and control programs



The structure of data changes and database designs must now accommodate a patient centric data model that supports longitudinal analysis. Interoperability issues change as the business and use cases for these systems evolve and patient identification becomes universal across the various services of a health system. Consistent communication of data and transactions across a heterogeneous health information system to provide a single logical view impose syntactic and semantic standards requirements.

Proper reporting becomes a consequence of a well architected national health information management approach rather than proper health information management becoming a casualty of a well architected national reporting system.

Major Problems and Issues

- The main challenge of health information surveys is how to secure budget for development of prospective plan and sustain the survey system
- Quality of data collection, processing and analysis are also major challenges
- Even though surveys have pointed out the obesity and diabetes are major public health concerns, the greatest challenge is to ensure that information will reach the policy level
- Biobanks need sustainable economic support. The breach in Biobank confidentiality and ownership of personal data are crucial issues. Promise policy decision oriented data architectural structure design is a major challenge issue for Biobanks
- The value of data is in policy implementation for health system strengthening.

Suggested Solutions

- To develop prospective plans and sustainable survey systems
- To provide key supporting resources include secured budget, technical and operational resources and quality control measures
- To employ appropriate technology in data collection to ensure accuracy of data
- To promote implementation of the survey data at policy level
- To established sustainable economic support for Biobanks
- To ensure collection of biological, medical and lifestyle data from a large number of people and follow their health in the longer term of their life course
- To enhance disease and mortality surveillance systems accompanied with biostatistics as well as reliable archiving of samples would provide a widely practicable resource to investigate the biological correlation of HIV and other rare diseases
- To promote innovative specimen collection and data analysis measures such as dry blood spot (DBS)
- To foster data architecture that supports decentralization to primary care and person-centric to ensure consistency of data
- To ensure privacy confidentiality transparency of personal data
- To ensure smooth transition of data architecture by means of universal standardized platforms
- To foster policy decision oriented data architectural design bit by bit
- Data system development should be employed with health system strengthening
- Involvement of stakeholders.

When health systems are weak, or not working, how are you expected to improve HIS? How do you produce quality information? Edward Magbity, Sierra Leone

"Information is care" (Don Berwick, IHI).

Parallel Session 1.4

Generating Global Evidence: Births, Deaths and Causes of Death

Moderator:

Armin Fidler

Speakers:

Alan Lopez

Prasanta Mahapatra

Joyce W. Mugo

Sam Notzon

Peter Kim Streatfield

Key Messages

1. Decision-makers need statistics on the population health, size, growth, and location. Such vital statistics are essential for policy formulation, service delivery, evidence-based decision-making, and monitoring of interventions. The information is essential for both health and other sectors-justice, education, labour, interior etc.
2. The best source of statistics on births, deaths and causes of death is complete civil registration which also confers proof of identity on individuals. They can thus benefit from legal, economic and social rights: citizenship; access to services; inheritance/property rights; and protection from abuse e.g. child labour.



3. Civil registration is essential for health systems. It signals good governance, enables accountability, promotes stewardship, and permits the measurement of health system performance. International commitments to achieving the MDGs will depend greatly on reliable vital statistics for monitoring progress at subnational levels.
4. Civil registration systems have been neglected because resources have been directed to other ways of estimating key indicators, for example, household surveys. However, civil registration systems (when complete) have advantages over other sources of data. They:
 - Empower districts and local communities because they generate data at both national and local levels, for small areas and population groups
 - Produce data that are timely and continuous allowing construction of a time series
 - Are cost efficient because, once established, ongoing costs are lower than for comparable methods such as the census, surveys
 - Confer legal benefits to individuals.
5. A window of opportunity has opened up in recent years. Donor agencies and funds are increasingly committed to supporting country efforts to strengthen civil registration.
6. Improving vital statistics is possible, as shown by experiences in Kenya, Philippines, Sri Lanka, and Thailand. A first step is to develop a solid understanding of the existing system and processes (strengths, weaknesses, capacities) and then formulate an improvement plan that is realistic and feasible. All countries need to pay attention to regular monitoring of completeness and quality of data. Investment is needed to build country capacities for the critical review and assessment of data quality - at the policy level and at community level - and for presenting information to stakeholders. When data are understood they are more likely to be trusted and thus more likely to be used.
7. Efforts to improve civil registration depend critically on:
 - Civil society mobilization and community involvement
 - Individuals, the primary source of the data, need to become both producers and users of the information

- A rights-based approach that recognizes the role of civil registration in enabling the progressive realization of social, economic and human rights
- Engagement of the medical community which shares and understands the public health imperative to correctly complete medical records and certificates
- Building capacity among key stakeholders for critical assessment of vital statistics data at all levels
- Creation of incentives for individuals to register vital events, for professionals to maintain good records, for analysts to carefully review and maintain quality, and for decision-makers to use the data in policy development and resource allocation
- A “whole of government” approach involving all sectors
- High level leadership and country ownership.



Parallel Session 1.5

Choosing and Using Standards for Interoperable Information Systems

Moderator:

William Hammond

Speakers:

Beatriz de Faria Leao

Andrew Grant

Patrick Whitaker

Jennifer Zelmer

The Key Messages from the Presentation

- Interoperability is the ability to share and use data among a variety of sites
- WHO and other organizations should adhere to standards and induce governments to do so by providing training in health informatics, promoting access to free standards, and commissioning roadmaps and tools to implement standards



- Opportunity now to reinforce access to and exchange of knowledge about standards and their use and enable feedback between developers and users
- Standardization leads to efficiency in use of information through interoperability
- We need to know who makes the decisions to adopt and we need an agreement to implement them.



Major Problems and Issues

Health data has obstacles of: bridging language barriers, levels of expertise, realms of knowledge. We need to know whose data it is, what the data signifies, how to move it, aggregate it, and trust that it is accurate.

- The last 15 years intense standards work from many countries has produced many efforts; important to enable awareness between standard developers
- Imperative to use coherence in presentation of information - glossary
- Why standards?
 1. They allow a safe and effective exchange of data, whether for mobile patient data, or non-duplication of tests/scans etc.
 2. With standards you can offer new functions and benefits- medications can be cross-referenced, and the advent of personal health records.

3. Reuse of information in low-resource settings enabled by standardized data - e.g. SNOWMED allows patient data to be mapped and exported as statistical and surveillance outputs
- When implementing standards, it is hard to know which version of standards to use, which indicators are critical, and what guidelines to use
 - Unique identifiers: overcome complications and a history of inaction and bolster your case by incorporating additional sectors.

Suggested Solutions

Standards that we need are unique person identifier, terminology for specific purpose (ICD 10, SNOMED-CT, LOINC, HL7), core data sets, data interchange standards, and quality standards.

- Standards in Brazil – ICD-10 for diagnosis, for procedures Brazilian CPT Codes private x public, and medication. Patient ID and Profile ISO/TS 22220. HC Professional ID and Profile and HC Providers Registry extends ISO/TS 27527
- Interoperability has several standards - XML, HL7 TISS, etc.
- Telehealth saves lives and money by not having to transport patients in remote areas
- Standards Knowledge Management Tool - www.cred.ca/skmt_glossary
- Adoption of standards upholds decision support and safety
- Statistical Data and Metadata Exchange - Health Domain: SDMX-H - allows for harmonization and the flexibility health workers require (as opposed to bankers who know what the one thing they're collecting will be)
- In order to decide who determines unique identifiers, with all the competing providers, create an HIS governing body within the MoH with authority to make that decisions
- Information needs to be coded in a language care providers are going to use.

Plenary Session 2

Stepping Up To The Plate: Who Does What to Improve Health Information For Monitoring Health-Related Goals?



Moderator:

Timothy Evans

*Assistant Director-General,
Information, Evidence and Research, WHO*



Panelists:

Ties Boerma

*Director
Department of
Health Statistics and
Informatics, WHO*

Mark Landry

*Senior Informatics
Specialists
PEPFAR, Office of
the Global AIDS
Coordinator*

Daniel Low-Beer

*Unit Director
Performance,
Impact and
Effectiveness,
The Global Fund*

Sania Nishtar

*President and CEO
Heartfile
Organization*



Frank Nyong'oro

*Director
Policy Planning,
Monitoring and
Evaluation Division
Ghana Health Services*

Key messages from the presentations

We need to work together, coordinate our activities as well as aligning our efforts and in many cases our indicators and expectations. There have been similar calls in the past, declarations signed, and promises made - but they have not always been followed through upon. We need to recognize that donor agencies as well as governments may have some differences in their need for information- but we may need to agree to alter some of these indicators to reduce the burden of collection and hopefully improve the data available for general use to allow us to make more progress.

Major problems and issues

There are large issues with getting agreement from multiple stakeholders to share data and work together. This will need to be addressed in a very practical way and it starts with agreement to do so, this should be in the declaration.

There is a pervasive problem with in-country capacity to both maintain and use the data they have. They need to be the owners of their data - this will help address some aspects of the burden of collection - if they see what the data is used for, and they can actually use it in the lowest levels. There are both measurement and management challenges.

Suggested Solutions

Solutions may lie in the use and application of standards - standards for data collection and reporting. This will make the data simpler to use and interpret for other purposes. The ideal situation would be a shared data warehouse, but that may still be a dream at this point. We need to look at simple ways of streamlining - like quarterly reporting - which will allow various organizations to report according to their own annual cycles by using the quarterly reports. There are several simple things we could do like this if we worked together. Making changes such as using joint platforms, improving capacity and results all start driving performance and the behavior of partners to working with donors.



Parallel Session 2.1

Tracking Country Health Systems Performance

Moderator:

Daniel Low-Beer

Speakers:

Tea Collins

Candy Day

Sania Nishtar

Phusit Prakongsai

Christopher Simoonga

The health system performance framework is a tool to answer how well the system has done or any health improvement. It is also increasingly demanded from many stakeholders especially policy makers. Currently emphasized or driven by the framework are health or diseases, resource constraints, and efficiency concerns. Additionally, the framework should also recognize the diversity in the geography, socio-economic status, ethnic groups, marginal populations, illegal recognition, as well as individual characteristics, and morbidity patterns of individuals who contribute to the different health status of people in each country.





There are several frameworks for measuring health systems performance. Most of them address the goals of health status, health services, and equity in financing. Some frameworks are divided into several blocks or domains explaining their input, output, and cross-cutting domains. Some domains also emerge from certain country-specifics such as governance, responsiveness, etc. Citizens' perceptions of health systems may be considered together with experts and health administrators for development of the tools. National goals may be set as a forward direction, for instance the vision of the Zambia

reforms, that state providing the people of Zambia with equity of access to cost-effective, quality healthcare as close to the family as possible as a goal.

The appropriate monitoring tool sometimes tracks health system performance by using routine administrative data and surveys. These tools have to have enough capability to uncover and track improvement from year to year of health status of vulnerable subgroups of the population, who are neglected from needed health services. The way toward goals of a health system - equity in outcome, fairness in financing and responsiveness- these tools have to disaggregate at the sub-national level, which disaggregates enough to see the vulnerable groups, in a timely manner. So that health administrators and the public can have enough information to improve their areas, implementation probably starts with picking up relevant indicators and then using available data. Most countries also have some existing surveys such as demographic, socio-economic, and health status that are important data sources.

A better health information system is the key to measuring and understanding of their health systems performance. Health information

system (HIS) is very crucial for compiling quality data for a health system performance framework. Information has to be disseminated among stakeholders, especially the public, to facilitate and foster the transparency, accountability and further reform of health care systems. It is recognized that multiple agencies have to be involved in the process of design, data collection and analysis. Therefore, the coordination among those institutions to harmonization and alignment of data and information from different sources is crucially important. For instance, HIS assessment in Zambia is using the HMN framework, but as a country led process, jointly conducted with key sector partners through a repeated consultative and consensus building process.



Strategy of performance utilization is another issue that was raised from the meeting discussion. Although composite indicators are often criticized, they may help the policy makers to understand a macro picture before making policy decisions (especially in ranking systems). Sub-national level analysis presented from the South African experience illustrates that there were inequities of socio-economic status and health care expenditure per capita. Statistically, sub-national level analysis probably can find any outliers from any data set.

Major challenging issues

The common challenges are availability and quality of relevant data. Adequate and quality information on different administrative data, clinical data, vital statistics, especially private sector and surveys, were discussed. Rare events may be lacking in routine existing data, as well. Lack of data standards for consolidating data to create needed information was also another big hurdle.

There are multiple frameworks of health system performance assessment from international organizations and innovations from the business sector e.g. balanced scorecards. However, more research is still needed on how to design health information systems and monitoring and assessment tools that can be responsive to diverse population needs and meet to country specific context especially in developing countries.



Each country therefore needs its own clear framework, and a focal point for implementation. Champions or leadership of the country is critical to move it forwards. It is also needed to build capacity building of performance assessment at all levels, both individual and institution. Therefore, financial support for research and development including implementation of health care information system for tracking the health system performance was one of major concerns of the meeting.

Some criticism probably comes from frameworks, methodology, and interpretation. It is difficult to specify which determinants directly contribute to population health. Clinical outcomes cannot always be assessed in a timely and feasible manner, e.g. chronic diseases. The composite aggregate indicators, proxies to measure systems' performance, are hard to interpret i.e. information on some population groups may be lost. Finally, policy development and implementation relatively based on performance measurement is still lacking.

Recommendations

Institutional capacities of countries have to be enhanced on developing and priority setting of indicators relevant to health system performance, standard data sets, analysis techniques, planning and implementation of necessary information system for both routine data collection and surveys. Capacity building should be also created both at national level and local level. Appropriate indicators on social determinants of health should be included into the framework. Furthermore,



health information and assessment frameworks for small areas is a strategic approach for real and sustained success of the health system performance of the country. The private sector also has to be included into the assessment framework. The indicators have to be simple enough for implementation at sub-national level.

Practically, coordination among international organizations, donors and countries to plan and allocate enough resources to develop a network to improve information systems is possible. However, it should be a country led process and implementation of the process has to follow a concrete road map.

The leadership of the country is crucially important for successful implementation. Conducting research on health system performance and methodology data collection and quality improvement e.g. vital statistics, electronic clinical data, has to be supported. Support or funding for health information systems possibly comes from the government, or data users e.g. health insurance organizations, or donors. For instance, the Health Information System Development Office (HISO) in Thailand has been financed by Health System Research Institute (HSRI) and the Thailand Health Promotion Foundation. It is emphasized that a long-term strategic plan for capacity building of HIS, both at individual and institution level needs investment, especially within departments to improve of data quality and standards.

Parallel Session 2.2

Financial and Human Resources for HIS

Moderator:

Keizo Takemi

Speakers:

Charu Garg

Magnus Gborie

Brad Herbert

William Hersh

Alvin Marcelo

Maurice Mars

The Key Messages from the Presentation

- Informatics principles are universal across all other five health system building blocks and all settings
- There is limited knowledge on human resources and financial resources for HIS both in developed and developing countries.
 - No data of the current situation
 - We don't know the needs
- Experiences inform need for expertise in health informatics at all levels: national and implementation levels. Informatics professionalism and leadership are essential for success



- Sources of funding for HIS are now from both domestic sources and international development partners e.g. WB, GF, GAVI/HSS, PEPFAR, Bilateral (e.g. DFID, CIDA, USAID etc). In developing countries normally government invests in health infrastructure, human resources of health, health services, but less investment in HIS. Main sources are from international development partners
 - Current levels of funding for HIS is a total of 295 million USD from: WB (103 million USD), PEPFAR (100 million USD), GF (73 million USD), GAVI (12 million USD) and HMN (7 million USD)
 - Data of country distribution was available for 85 countries of 295 million USD reported. There are variation of money use [2 countries received \$116 million, average for remaining 83 countries was \$2.1 million, 39 countries less than \$500 thousand and one country \$25,000]
- National Health Account is a tool to track money flow for health system, but not for HIS.

Major Problems and Suggested Solutions

Problems	Suggested solutions
<ul style="list-style-type: none"> • Limited number and quality of human resources for HIS. 	<ul style="list-style-type: none"> • Create awareness that informatics professionalism and leadership are essential
<ul style="list-style-type: none"> • Capacity development is urgently needed at all setting 	<ul style="list-style-type: none"> • Training using many strategies e.g. <ul style="list-style-type: none"> • Hands-off technique for computer literacy (no computer on Day 1 training and use structured learning exercises to impart concepts) • Embedding new knowledge and skills into workflow <ul style="list-style-type: none"> • Don't overload staff with skills they cannot use on a daily basis (e.g., Word, Excel, etc)



Problems	Suggested solutions
	<ul style="list-style-type: none"> • Instead, let them use an electronic health record that they use daily • Bonus: open source allows us to do this with impunity without worrying about licensing and metering • Making documentation simple and personally relevant but digital
<ul style="list-style-type: none"> • Problems of information is not only the data itself but also management of the data:- stakeholders involvement (university, clinician, health staff, analyst, implementers, developers and policy strategists), capacity building/ development at all levels, data gathering, analyzing, interpretation and translate to evidence based policy decision. 	<ul style="list-style-type: none"> • Focus on information, not technology • “Harnessing routine health information for decision making at the grassroots” • Change the data collection paradigm on the ground (personalize and atomize) • Let “data quality” be the target, not the indicator • Use culturally appropriate ‘carrot and stick method’ as incentives to data quality • Flatten the transmission (straight to repository)

Problems	Suggested solutions
<ul style="list-style-type: none"> • Coordination and harmonization among donor's contributions are needed. 	<ul style="list-style-type: none"> • Using multiple sources of funds • To draft a successful proposal - country assessment, strategic plan, including costing HIS components and develop HIS project/program for funding. • A proposal of a HIS project should have strong government commitment, clear objectives, better outcomes, economically, technically, and financially sound, appropriate design to match local capacity, reasonable timeframe for implementation, sound operational plan, clearly specify who does what, when, where, and how in a good documentation.



Parallel Session 2.3

Universal Access to Health and Health Services:
Essential Information to Track Progress and
Support Management. From Measuring
Inputs to Measuring Impact?

Moderator:

Adam Wagstaff

Speakers:

Hannes Danilov

Supon Limwattananon

J. Rachel Lu

Giota Panopoulou

The Key Messages from the Presentation

All four presentations at this session highlighted the value of having consistent and good quality data over time to assess progress towards achieving universal coverage. The analyses from Thailand, Taiwan and Korea showed that important lessons can be learnt about the design features of reforms, their impacts, and the pre-requisites needed to



make reforms work by comparing and analyzing data over time. The presentation from Mexico highlighted the importance of compatible health information systems in health systems that are characterized by multiple, vertically integrated insurance schemes. Universal coverage does not require a single health information system; instead, it requires compatible systems that are able to exchange data with one another. The presentation from Estonia highlighted the multiple benefits to patients, providers and the state of an electronic health information system. All four presentations highlighted the very high potential for data discrepancies in health systems, not only between health insurance schemes, but also between household survey and administrative data. To accurately measure the impact of health financing reforms on coverage, data sources need to be consistent with one another.



Major Problems and Issues

Discrepancies between data sources emerged as the most important problem. Underlying these discrepancies are problems in data collection and reporting. The discrepancies undermine both equity and efficiency in health systems because make it hard to target resources effectively, leading to over- or under-provision. Ensuring that enrolment rates and utilization are measured and reported correctly could contribute greatly to improving equity.

Another issue that was raised during the question time was related to the importance of regulation in establishing health information systems. In the absence of regulation, the different incentives of stakeholders may undermine the collection and reporting of good quality data.

In examining equity in health care, the focus has tended to be on household survey data and demand side variables. Trends in supply side variables should also be examined as they are critical pre-requisites for achieving universal coverage.

Cross-country comparisons are useful but ensuring comparability can be a challenge.

Suggested Solutions

Suggested solutions for reducing discrepancies in data and improving data quality include: having compatible data systems in the case of multiple insurance schemes; combining administrative data with household data; use of electronic data collection and reporting.

Regulation is important for institutionalizing good health information systems. The regulation needs to be backed up by adequate consensus amongst the various stakeholders.

The Equitap study used standardized methodology to do cross-country comparisons, and thus achieved a high level of comparability of results across countries.



Parallel Session 2.4

Public Stewardship of Private Providers: The Role of Health Information Systems

Moderator:

David de Ferranti

Frank Rijsberman

Speakers:

Richard Coker

Phal Des

Krishnamurthy (Gopi) Gopalakrishnan

Fola Laoye

The Key Messages from the Presentation

Richard Coker

- Silos exist within the public and private sectors. Tuberculosis for example illustrates the chronic problem of failing health systems
- From public health, pandemic threat - information is needed to detect and warn, enhance containment capacity if feasible leading to mitigation and recovery
- Information needs to be coherent across different geographic regions. Can use that data if sufficient, to link across institutions and use resources most effectively



- In Bangkok, most people use the private sector; but it is impossible to get information from private providers. The private sector needs to be incorporated when mapping resources
- **“Information for what purpose?”** From a public health perspective we need information to support detection early warning, prevention capacity, and containment capacity.



Phal Des

- Mapping health centers in Phnom Penh in order to locate health care centers for road traffic accidents
- The goal is to create a map, which the public can access information online and locate health centers nearby
- Eventually Cambodia wants to develop a computer aided dispatch emergency system



Krishnamurthy Gopalakrishnan

- In a country like India where 80% of health care delivery is private, the only choice available is the private sector
- A lot of knowledge of public sector and NGO sector but when you try to analyze the private sector with public sector metrics a lot of things go wrong, and you get distorted picture
- The private sector's interest is in curative care, and most of the 80% they provide is curative care
- Private sector's role in public health is minimal; the private sector is not there for the poor, only the public sector focuses on curative care
- The private sector is lumped together, but has many components i.e. non-profit, for profit, informal, formal, etc., and nuances. Unless an understanding of these is made, it will be difficult to harness the resources available.



Fola Laoye

- In Nigeria, almost 40% of clinics in the delivery system are run by the private sector. A lot of spending is happening through private means, leading to a debate about the private sector in health care, since the public sector has not grown much in Nigeria. The issue of stewardship though at the same time presents interesting opportunities
- Health insurance is a good platform for linking the public and private sectors. It also drives the need for information and IT systems



Opportunity for insurance is that documentation of epidemiological shifts can take place, benefiting both clinical and financial information needs

- Health insurance platforms rely on data
- Need to incorporate the private sector into national health policy and planning
- Opportunities are provided by health insurance platforms;
 - Reimbursement relies on remittance of data, acting as a strong incentive for providers to share data.
 - Protocol standards lead to changes in physician practices.
 - Challenges of enrollment provide opportunity to implement a biometrics system.

Major Problems and Issues

- Difficulties and challenges in sharing data between the public and private sector
- Private sector needs incentives to share data
- Private sector is reluctant to share information due to tax implications and regulations
- Information ownership and privacy implications
- If accreditation of the private sector and validation of service claims is left to the public sector, change will be difficult.

Suggested Solutions

- Need to provide incentives for private providers to share data, i.e., through health insurance platforms, include in policy discussions
- In order for countries to be effective stewards of their entire health system, they should prioritize a collection of information from non-state health care providers. This information is crucial for effective regulation of quality/consumer protection, disease surveillance, and coordination of key services. Rich information databases about the private providers and the services they provide can be built on platforms such as national and private insurance and new delivery technologies that automatically collect information (e.g. call centers, telemedicine kiosks, and cellphone/mobile devices).



Plenary Session 3

Enhancing Global Security: Information Systems as the Foundation of Pandemic Preparedness and Response



Moderator:

Miriam Were

Board of Trustees, UZIMA Foundation



Panelists:

Richard Cash

*Senior Lecturer,
Harvard School of
Public Health and
Former.
Prince Mahidol
Laureate*

**Bounlay
Phommasack**

*Deputy
Director,
Ministry of Health,
Lao PDR*

Guenel Rodier

*Director of
International Health
Regulations, WHO*

The Key Messages from the Presentation

1. Air travel is an enormous risk to public health and will likely continue to be so for the foreseeable future.
2. The June 2007 International Health Regulations (IHR) strike a fine disease-reporting balance between international solidarity and national sovereignty. They represent a significant milestone in global cooperation and need to be supported, particularly in the recognition of the risks that air travel poses to populations worldwide.
3. Every nation has an IHR Focal Point and they are free to talk with each other, bilaterally, without going through the WHO. Trust networks can and should be developed within regions, perhaps on the MBDS and MEDCIDS model.
4. It currently takes weeks, on average, to discover an outbreak. Strengthening national biosurveillance systems is one of the few ways to improve that statistic.
5. Surveillance is useful only to those who have the capacity to respond.
6. Surveillance efforts are often viewed by citizens (and health staff) in the developing world as a protectionist burden on Global South health staff by the North. Such impressions (and resentment) can be mitigated through greater attention to the plight of the vulnerable and the strengthening of national health systems.



Major Problems and Issues

Southeast Asia is a regional focus for emerging infections. 75% or so of emerging infections are zoonotic (and a fraction are simply emerging resistance as an increasing threat). Who owns that animal part of the One Health problem?



1. There is no adequate definition of Global Health Security (GHS)
 - One meaning is shared international responsibility to keep each other healthy
 - Another (an historical US view since 9/11, according to Richard Cash) is that Global Health Security truly addresses only national threats
 - GHS should be defined in a manner that protects the poor.

2. India and China are huge percentages of the global population. Why are there so few reference laboratories in either country?
3. H1N1 came out of Mexico - an unexpected source of a new pandemic, but (Cash argues) industrial food production has skewed risk in unanticipated ways, including evidence of novel recombination and global spread. Can our current paradigm of global national biosurveillance and containment ever be effective in light of globalization of industrial food processes, pathogen reproduction opportunities, and virulence pressures?
4. There is a significant and obvious degree of unfairness in the obligations put on the developing world by the developed world and it looks very self-serving. Until the West has just as much interest and concern regarding poor countries and the care of their vulnerable populations as the West does of its own people, truly global biosecurity will be unattainable. Under the current circumstances, IHR mandates for reporting will be viewed, in part, as protectionist measures by the West without merit in the developing world and pursued only as far as national interests in the developing world carry them.



Suggested Solutions

1. We need to address fairness issues very soon. Perception as much as reality.
2. We need to ensure developing countries have at least a minimum capacity to respond to an outbreak effectively; we need a state of effective preparedness in every country.
3. We need to pay far better attention to One Health measures around wildlife and livestock. That's where threats are coming from.
4. We need to add compassion back into our planning and assessments and responses. We truly are a global village; we share each other's fate. We should behave like it.



Parallel Session 3.1

Improving Transparency Through Collaboration across Sectors

Moderator:

Richard Manning

Speakers:

Mohamed-El-Heyba Berrou

Alan Lopez

Jasap Dam Nagari-Popoitai

Ivo Njosa

Key Issues/Main Points

1: Communication: Understanding that across all levels, communication is the key to sound information sharing and data practices.

2: Transparency of Data and Alignment of Policies: Once different sectors start working together, levels of transparency will increase and data acceptance leads to action. Cross-sectoral policies will likely result in a reduction of collection error and redundancies.

3: Lack of resources and the need for training: The cost of coordination is very high and is a tremendous obstacle to achieving this work.

4: Coordination should be across all professional levels to ensure the quality and accuracy of data.



Challenges and Opportunities

1: Communication and Stronger Collaboration: How can agencies work in stronger collaboration and obtain data, not estimates? In many cases, two separate entities are collecting the same information but not sharing.

2: Knowledge Sharing includes the sharing of data collection limitations (biases, systematic criteria).

3: Encourage different analytic approaches to data. What else can the data show us? The biases and limitations can also show us valuable information.

4: Overcoming the fear of data sharing and what the information shows us. How can we identify these solutions... so that the enemy is not the good?

5: Engaging Civil Society.... how does this work? How can civil society transform government accountability?

6: Ensure that all levels of staff understand their role in compiling and distributing the data; training is very critical.

General Discussion

- How do small Pacific Island countries fit into global information communities where the challenges are quite different? One size fits all does not fit in any situation, much less small-island developing states
- India: National Rural Health Mission: Civil Society has the capacity to collect data and check it against the data that the government is collecting
- Transparency could be achieved at the cost of accuracy; sometimes the accuracy can be achieved at the cost of transparency. Sometimes data can make people nervous and you are not expected to share
- Incentives are needed for proper data collection and reporting
- Good governance is key to sound data collection and reporting policies
- Political commitment is one of the largest barriers to this work.



“Estimation is Art, not Science.” (Alan Lopez)

“Political leadership is essential.” (Abadila Berrou)

“The health sector needs data from other sectors. Policy can facilitate strong collaborations across sectors.” (Abadila Berrou)

“I think we need to recognize that whether we are data analysts, producers, or health workers, we have poor communication. Training and advocacy in communication is key to this process.” (Abadila Berrou)

Parallel Session 3.2

Exploring the Frontiers of Health Information in a Petabyte Age

Moderator:

Renata Bushko

Speakers:

Mridul Chowdhury

Gabe Rijpma

James DelloStritto

Julia Royall

M. Chris Gibbons

The Key Messages from the Presentation

Advances in data technology can be used to improve health, at all levels:

- Consumer control of health
- Healthcare delivery
- Better government policy for better life
- Global improvements in health status
- The mobile phone is a growing contributor to data generation, with potential for use in health





- Data on its own is not useful – there is a need to create information, and a need to create insight
 - Increasingly doctors deal with more data - need for technology to help them to maximize its use
 - Need tech applications in areas where there are shortages of health care professionals
- One new technology under development is the personal status monitor
 - Wearable vital-sign status monitors that can be worn for extended periods of time
 - Research in making low cost, durable, monitors that can be worn on the skin ('smart' bandaids) or in clothing, to provide real-time monitoring
 - Analogy with a restaurant pager that tells diners when their meal is ready - doctors could be informed when patient vital signs change
- Technology must meet people's needs, based on what will work in their environment:
 - Appropriate
 - Accessible
 - Sustainable
 - e.g. Grameen phone model - boosted Bangladeshi economy more than any aid programme
- Technology expansion is inevitable - we need to plan for how we can make it useful
- Need to make data accessible where it is needed
 - Use of appropriate technology has helped malaria researchers in Africa collaborate internationally, and develop information programs that are locally relevant and responsive

- Mobile phones as low-cost, accessible technology to maximize use of primary health care workers
 - SMS technology can be used to access specialists, provide real-time data, effectively supervise staff, give guidance, provide health information on demand and feed into surveillance programs
 - Needs to have a sustainable economic model (not vertical, pilot or donor-driven).

Major Problems and Issues

1. Discrepancy between healthcare in rich and poor countries - technology solutions rely on expensive infrastructure that countries with serious health issues can't afford: as we move into a petabyte age discrepancies will be a greater.
2. Growing shortage of doctors.
3. Cultural & social element to health disparities.

Suggested Solutions

1. Need to find the right tools to meet local needs. Power of existing technology should be utilized and democratization of medicine, by providing global communications.
2. Technological interventions:
 - a. Using 'virtual doctors' to advise and triage patients (high end) to enabling health care workers to operate remotely by accessing information and expert advice using mobile phone technology
 - b. Personal Status Monitoring - smart technology giving patients shared responsibility in understanding their personal health
3. Information technology has the potential to empower people - following the Grameen phone model.

"We used to dig of health information like we used to dig for gold... The petabyte age will bring a river of melted gold." (Renata Bushko)



Parallel Session 3.3

Measuring the Un-measurable: Death, Disease, Health and Happiness

Moderator:

Laragh Golligly

Speakers:

Ronald Colman

Apirak Kosayodhin

Timothy Evans

Dorji Penjore

The Key Messages from the Presentation

- Need for reliable and robust HIS and use it to complement other indicators
- Composite measures can be used to encourage a fairer and more democratic process
- Money makes the world go round; nothing changes behaviour better than price signals
- Two types of well-being: Inner Wellbeing and Outer Wellbeing
- The short-term strategy and work plan for the development of the index is building up a national dream and visionary roadmap, a working mechanism and public awareness and social support
- GNH is more important than GDP or GNP. GNH is a holistic development concept which takes into accounts both the material and spiritual aspects of development
- Good indicators are useful only if they are used for informing public policies and projects.



Major Problems and Issues

Timothy Evans

- From policy point of view, composite and aggregate measures may not be as helpful as distinction between what is improving and what is not improving
- It is a work in progress, what seems to be a good composite index today may change in the future
- Young science....and further research is required.



Ronald Colman

- We won't begin to send price signals that are in accord with health promotion priorities until we change the present produce-and-spend economic accounting system to reflect the true social, health, and environmental costs and benefits of economic activity.



Apirak Kosayodhin

- The Thai society has enjoyed an impressive growth rate of GDP but there have been a lot of complaints regarding quality of life, pollution, etc.



Dorji Penjore

- How do you measure happiness?
- One perceived limitation of GNH in terms of cross-cultural application is the strong influence of Buddhist values. Replicating GNH in other countries may be problematic.



Suggested Solutions

- Composite measures are poorly understood in many countries. Support and training are needed to convince policy makers that measures are meaningful and useful
- To assess a nation's true wealth, we need to measure the value of natural, human, social, cultural, built and financial capital. We need to build political will and create a new accounting system
- The key success factors to develop the desirable measures are the ownership of the index across the society, the continuity of the execution process of the index in all levels and the link between the national statistic system and the decision makers
- With the will of the people and strong leadership anything can be achieved
- All countries can replicate GNH in other country contexts as it is based on basic human values.



Parallel Session 3.4

Harmonizing Multiple Health Information Systems through Effective System Analysis and Design

Moderator:

David Ross

Speakers:

Michael Bainbridge

David Lubinski

Ngai-Tseung Cheung

Christopher Seebregts

Richard Gakuba

The Key Messages from the Presentation

- All countries have different burdens, but common goals. We all want safe effective, affordable healthcare system and an architecture approach can provide this
- Architecture in HIS is like planning a garden - you have to know what needs/activities must be supported in the garden, allow space for growth of the system, and maintain the organic nature of the processes/maintenance that are inevitable
- Engage clinicians in the development of an architecture, focus on usability
- Very important to do it in a step-by-step building block approach - build incrementally, with pilots and plenty of testing
- The information architecture must be standardized, using international standards where possible, but extending where required for local use.



Major Problems and Issues

Why do we need an architecture?

- There is a great need to share data in the healthcare sector; and there are so many systems in healthcare (clinical, drug list, diagnosis) that require common data and standards
- Partners, stakeholders, and vendors need to be in alignment;
- Architecture guides need consistent implementation (regardless of HR turnover)
- An architecture approach reduces costs of implementation (changing a system later is expensive), and guides procurement/acquisition (software vendors can promise you heaven but you need to take control of what you're buying).



Suggested Solutions

- There is currently a great deal of overlap/duplication of efforts. An Enterprise Architecture approach can promote reuse and efficient resource utilization
- We should apply standards in a country context and develop easy to use tools
- There is much existing infrastructure and lessons to be learnt from developing countries and no need to reinvent the wheel. We can adopt approaches and components such as those made openly available by the NHS Connecting for Health and other institutions

- The similarities between countries are much greater than their differences. Mapping processes and applying standards should not be as difficult as it would initially appear
- We need both the standards and the tools to implement standards as well as training and free access for developing countries. We need to assist national standards bodies to establish country standards and sit on international bodies
- There are patterns of usage that can be exploited and unnecessary variation should be avoided. We should start off by only controlling systems where safety is critical
- Capacity is a central requirement that needs to be addressed. We should look towards building or strengthening in-country institutions and capacity that are key to sustainability



- We should keep the Enterprise Architecture development simple and use simple tools that promote communication
- Harmonization at multiple levels (resource utilization, indicators, funding) will be essential to realize the full potential of this approach.

Parallel Session 3.5

Managing Complex Data in Health Crises: Challenges for National Health Information Systems

Moderator:

Michael St. Louis

Speakers:

Keith Doyle

Mica Endsley

Juan Eugenio Hernandez

Tsehaynesh Messele

Augusto Pinto

The Key Messages from the Presentation

Robust and efficient information systems must run on quality data and supported by appropriate technology, and are fundamental in crisis management. Situation awareness (of staff) and the ability to transform data into usable information are also critical for decision making. Data and information sharing and integration are essential, and improves situational awareness. Health and emergency decision supporting tools, including geographic mapping (spatially-enabled





decision support systems) based on quality data enable informed and quick action and better coordination. Emerging crises may trigger the rapid development of new tools and applications which get incorporated into surveillance response systems.

Information systems that appropriately support early warning and response system are critical for effective management of crises

and complex emergency situations. It is prudent to establish risk management (as against disaster management) systems with a multi-hazard capability with community participation as part of a multi-sectoral, multidisciplinary and cross border collaborative system.

Major Problems and Issues

- Establishment of Public Health Emergency Management Networking/ partners
- Decentralized health systems with fragmented information system exhibit a lack of willingness to share complete data
- A more efficient and robust system of data collection may be required outside of the routine system for emergency or crisis response
- Inadequate staff capacity as in Situation Analysis.

Suggested Solutions

- Staff capacity development and training
- Capacity and ability to introduce new public health decision support systems
- Appropriate incentives or legislative requirements for complete and accurate data reporting
- Appropriate technology support for data and information management
- Create multisectoral partnerships for crises response and management
- Adequate funding and resources
- Data transformation into information and effective communication, even across borders
- A more efficient and robust system of data collection tools and applications may be required outside of the routine system for emergency or crisis response
- Policy, data and systems standards, data security and legislations are important.



Call to Action

Global Health Information Forum 2010



We the participants of the Global Health Information Forum 2010, convened by the Health Metrics Network, the Prince Mahidol Award Conference, the World Health Organization, the World Bank and other development partners, representing national health ministries, academic institutions, intergovernmental agencies, bilateral development agencies, private foundations, global health initiatives and civil society in developed and developing countries:

Recognizing the degree to which health information enables national health systems to achieve the best possible health outcomes and return on investment;

Confronted by evidence that many national health information systems are poorly equipped to meet current information demands for policy decisions and are ill-prepared to meet future requirements, particularly in the context of emergencies, health crises and climate change;

Realizing that increased monitoring and evaluation investments by single-disease programmes in the context of rapid technological advances have the potential to dramatically improve health information systems if properly leveraged;



Noting the historical trends and factors contributing to the current gaps in health and population information and that equitable distribution of health outcomes is as important as achieving overall health goals;

Recognizing the requirement for national government stewardship of the health information system development and the responsibility of donors and international partners to support these systems;

Concerned that globally there are 40 million births (one third of the world's annual total) and 40 million deaths (two-thirds of the world's annual total) that are not legally recognized by civil registration systems - and that there has been no appreciable progress in many countries;

Welcoming the opportunity presented by new tools, technology and consensus in this area¹,

Encouraging governments to include explicit strategies for national health information system development when preparing their national health strategies;

Agree to the following general principles:

¹ including the Health Metrics Framework endorsed by the World Health Assembly in 2007, the Bellagio eHealth Call to Action, the Paris Declaration, the Marrakech Action Plan on Statistics, the Call for Action on Health Data from Eight Global Health Agencies and the collective efforts to measure and achieve the Millennium Development Goals.

1. Transparency and benefits

- guaranteeing transparency of all health data with due considerations for privacy and confidentiality
- ensuring that the benefits of data collection accrue to the people and communities who are the sources of that data

2. Good governance

- ensuring that information is collected from all public and private healthcare providers
- basing national health strategies on health information systems that monitor an agreed number of indicators used by all partners
- developing national performance monitoring tools to track progress towards health goals
- monitoring health equity by the application of socio-economic and living standards households surveys
- strengthening intersectoral collaboration and coordination to develop and govern national health information system policies

3. Investments and capacity building

- fostering a technologically competent health information workforce by appropriate training and recognition of necessary skills and tasks
- establishing national institutes, curricula and qualifications to train and certify professionals working in health informatics, data collection, analysis, dissemination and use
- mobilizing resources and investing at least 5% of health resources in national health information systems, with at least 2% allocated to building vital statistics systems - with the aim of achieving by 2020 - 90% completeness of birth and death registration and improved cause-of-death data
- investing in appropriate technology - based on open standards - that permits rapid expansion to rural populations that empowers frontline employees with real time access to information and permits rapid action in public health emergencies
- scaling up investments in the information systems needed to track the emerging epidemiological transition



4. Harmonization and integration

- fostering integration of data produced by national statistical offices, ministries of health and other sectors
- facilitating intersectoral collaboration and data sharing through the use of open standards and common data models
- ensuring community participation and ownership through effective and timely feedback

5. Planning for the future

- promoting appropriate technological solutions compliant with open standards to leverage investments within and beyond countries
- negotiating for developing and emerging country access to products of - and collaboration with - standards development organizations
- assessing the probable impact of massive data flows on human resources and finance in terms of the capacity required to store, compute and analyse petabytes of data.



ANNEX I

Conference Organizing Committee Members

- 1. Dr. Vicharn Panich** **Chair**
Chair, International Award Committee and
Scientific Advisory Committee
Prince Mahidol Award Foundation
Chairman, Mahidol University Council
Bangkok, Thailand
- 2. Dr. Timothy Evans** **Co-Chair**
Assistant Director-General
Information, Evidence and Research
World Health Organization
Geneva, Switzerland
- 3. Dr. Sally Stansfield** **Co-Chair**
Executive Secretary
Health Metrics Network
Geneva, Switzerland
- 4. Dr. Julian Schweitzer** **Member**
Director, Health, Nutrition and Population,
Human Development Network
The World Bank
Washington D.C., USA
- 5. Dr. Ariel Pablos-Mendez** **Member**
Managing Director
The Rockefeller Foundation
New York, USA
- 6. Dr. Lincoln Chen** **Member**
President, China Medical Board
Massachusetts, USA
- 7. Dr. Paul Cheung** **Member**
Director
United Nations Statistics Division
New York, USA

- | | |
|--|----------------------|
| <p>8. Dr. Myint Htwe
 Director, Programme Management
 WHO/SEARO
 New Delhi, India</p> | <p>Member</p> |
| <p>9. Dr. Daniel Low-Beer
 Unit Director, Performance, Impact and Effectiveness
 The Global Fund to Fight AIDS, Tuberculosis and Malaria
 Geneva, Switzerland</p> | <p>Member</p> |
| <p>10. Dr. Jaime Sepulveda
 Director, Integrated Health Solutions Development,
 Global Health Program
 Bill & Melinda Gates Foundation
 Washington, USA</p> | <p>Member</p> |
| <p>11. Dr. Christopher Murray
 Director
 Institute for Health Metrics and Evaluation
 Washington, USA</p> | <p>Member</p> |
| <p>12. Dr. Mark Smolinski
 Director, Global Public Health
 Google.org
 California, USA</p> | <p>Member</p> |
| <p>13. Mr. Mohamed El Heyba Lemrabott Berrou
 Manager, PARIS 21
 Paris, France</p> | <p>Member</p> |
| <p>14. Dr. Keizo Takemi
 Research Fellow
 Japan Center for International Exchange
 Japan</p> | <p>Member</p> |
| <p>15. Dr. Prat Boonyavongvirot
 Permanent Secretary
 Ministry of Public Health
 Nontaburi, Thailand</p> | <p>Member</p> |
| <p>16. Mr. Virasakdi Futrakul
 Permanent Secretary
 Ministry of Foreign Affairs
 Bangkok, Thailand</p> | <p>Member</p> |

17. **Dr. Supat Vanichakarn** Member
 Secretary-General
 Prince Mahidol Award Foundation
 Bangkok, Thailand
18. **Dr. Piyasakol Sakolsatayadorn** Member
 President
 Mahidol University
 Nakhon Pathom, Thailand
19. **Dr. Teerawat Kulthanan** Member
 Vice President, Prince Mahidol Award Foundation
 Dean, Faculty of Medicine Siriraj Hospital
 Mahidol University
 Bangkok Thailand
20. **Dr. Suwit Wibulpolprasert** Member
 Senior Advisor on Disease Control
 Ministry of Public Health
 Nontaburi, Thailand
21. **Dr. Viroj Tangcharoensathien** Member
 Director, International Health Policy Programme
 Ministry of Public Health
 Nontaburi, Thailand
22. **Dr. Pongpisut Jongudomsuk** Member
 Director
 Health Systems Research Institute
 Nontaburi, Thailand
23. **Ms. Elizabeth Ashbourne** Member and Secretary
 Lead, Global Health Information Forum
 The World Bank/Health Metrics Network
 Washington D.C., USA
24. **Ms. Frances Rice** Member and Secretary
 Chief for Communications and Advocacy
 Health Metrics Network
 Geneva, Switzerland
25. **Dr. Churnrurtai Kanchanachitra** Member and Secretary
 Vice President
 Mahidol University
 Nakhon Pathom, Thailand

- | | |
|---|------------------------------------|
| <p>26. Dr. Sureeporn Punpuing
 Director
 Institute for Population and Social Research
 Mahidol University
 Nakhon Pathom, Thailand</p> | <p>Member and Secretary</p> |
| <p>27. Dr. Achra Sumboonnonda
 Deputy Dean for Academic Affairs
 Faculty of Medicine Siriraj Hospital
 Mahidol University
 Bangkok, Thailand</p> | <p>Member and Secretary</p> |
| <p>28. Dr. Sopida Chavanichkul
 Director, International Health Bureau
 Ministry of Public Health
 Nontaburi, Thailand</p> | <p>Member and Secretary</p> |
| <p>29. Dr. Pinij Farnuayphol
 Director
 Health Information System Development Office
 Nontaburi, Thailand</p> | <p>Member and Secretary</p> |





ANNEX II

Conference Speakers, Chairs, Moderators and Rapporteurs

Speaker / Panelist	Moderator / Chair	Rapporteur
Keynote Session		
Anne Mills Keizo Takemi		Hannah Cooper Nanoot Maturapote Jessica Schull Sirinart Tongsir
Plenary Session I: Health Information Systems: the case, their value, the current and future challenges		
Ariel Pablos-Mendez Julian Schweitzer Sally Stansfield Jeanette Vega	Richard Horton	Hannah Cooper Mike St. Louis Malee Sunpuwan Vasontara Yieng
Parallel Session I.1: Renewing policy and legislation for health information		
Karl Brown Maria Graciela Gamarra de Caceres Michael Graven Roger Magnusson Eric Rasmussen	Sally Stansfield	Christoph Bunge Tisha Gerber Tipicha Posayanonda Thaksaphon Thamarangsi
Parallel Session I.2: Tracking and communicating public health emergencies from the front lines		
David Aylward John S. Brownstein Ta-Chien Chan Channe Suy Ieng Vanra Prapas Weerapol	Mark Smolinski	Surasak Chaisong Peerapond Chutisuntarakul Sherrilynne Fuller Julie Pavlin
Parallel Session I.3: Informing the response to chronic diseases		
Wichai Aekplakorn Christopher Bailey Rajesh Kumar	Rafael Lozano	Supawan Manosoontom Chanin Sakul-isriyapom Johan Saebo

Speaker / Panelist	Moderator / Chair	Rapporteur
--------------------	-------------------	------------

Parallel Session 1.4: Generating global evidence: births, deaths and causes of death

Alan Lopez	Armin Fidler	Carla Abou-Zahr
Prasanta Mahapatra		Kanitta Bundhamcharoen
Joyce W. Mugo		John Cutler
Sam Notzon		Lene Mikkelsen
Peter Kim Streatfield		Vasootara Yieng

Parallel Session 1.5: Choosing and using standards for interoperable information systems

Beatriz de Faria Leao	William Hammond	Boonchai Kijsanayotin
Andrew Grant		Ramesh Krishnamurthy
Patrick Whitaker		Jessica Shull
Jennifer Zelmer		Chanwit Tribuddharat

Plenary Session 2: Stepping up to the plate: who does what to improve health information for monitoring health-related goals?

Ties Boerma	Timothy Evans	Kanitta Bundhamcharoen
Mark Landry		Hannah Cooper
Daniel Low-Beer		Liz Peloso
Sania Nishtar		Sombat Thanprasertsuks
Frank Nyongator		

Parallel Session 2.1: Tracking country health systems performance

Tea Collins	Daniel Low-Beer	Chris Bailey
Candy Day		Laragh Gollongly
Sania Nishtar		Weerasak Putthasri
Phusit Prakongsai		Thaworn Sakunphanit
Christopher Simoonga		

Parallel Session 2.2: Financial and human resources for HIS

Charu Garg	Keizo Takemi	Christoph Bunge
Magnus Gborie		Walajom Patcharanarumol
Brad Herbert		Jadej Thammatach-Aree
William Hersh		
Alvin Marcelo		
Maurice Mars		

Speaker / Panelist	Moderator / Chair	Rapporteur
--------------------	-------------------	------------

Parallel Session 2.3: Universal access to health and health services: Essential information to track progress and support management

Hannes Danilov	Adam Wagstaff	Mark Amexo
Supon Limwattananon		Sutayut Osomprasop
J. Rachel Lu		Pongsadhom Pokpemdee
Giota Panopoulou		Aparnaa Somanathan

Parallel Session 2.4: Public stewardship of private providers: the role of health information systems

Richard Coker	David de Ferranti	Lily Dorment
Phal Des	Frank Rijsberman	Natalie Phaholyothin
Krishnamurthy (Gopi) Gopalakrishnan		Pen Suwannarat
Fola Laoye		

Plenary Session 3: Enhancing global health security: information systems as the foundation of effective pandemic preparedness and response

Richard Cash	Miriam Were	Surasak Chaisong
Bounlay Phommasack		Martin Field
Guenel Rodier		Eric Rasmussen
		Thaksaphon Thamarangsi

Parallel Session 3.1: Improving transparency through collaboration across sectors

Mohamed-El-Heyba Berrou	Richard Manning	Tisha Gerber
Alan Lopez		Kathryn Graczyk
Jasap Dam Nagari-Popoitai		Nanoot Maturapote
Ivo Njosa		Weranuch Wongwatanakul

Parallel Session 3.2: Exploring the frontiers of health information in a petabyte age

Mridul Chowdhury	Renata Bushko	Peerapond Chutisuntarakul
James DelloStritto		Martin Field
M. Chris Gibbons		Natalie Phaholyothin
Gabe Rijpma		Steven Uggowitz
Julia Royall		

Speaker / Panelist	Moderator / Chair	Rapporteur
--------------------	-------------------	------------

Parallel Session 3.3: Measuring the un-measurable: death, disease, health and happiness

Ronald Colman	Laragh Gollogly	Christoph Bunge
Timothy Evans		Fran Rice
Apirak Kosayodhin		Jason David Theede
Dorji Penjore		Sirinart Tongsiri

Parallel Session 3.4: Harmonizing multiple health information systems through effective system analysis and design

Michael Bainbridge	David Ross	Liz Peloso
Ngai-Tseung Cheung		Bordin Sapsomboon
Richard Gakuba		Jessica Shull
David Lubinski		Iyarit Thaipisuttikul
Christopher Seebregts		

Parallel Session 3.5: Managing complex data in health crises: challenges for national health information systems

Keith Doyle	Michael St. Louis	Mark Amexo
Mica Endsley		Ramesh Krishnamurthy
Juan Eugenio Hernández Avilá		Pongsadhorn Pokpermdée
Tsehaynesh Messele		Tipicha Posayanonda
Augusto Pinto		

Conference Synthesis Session: Summary, Conclusion and Policy Recommendations

Lead Rapporteur Team
Pinij Faramnuayphol
Jeff Johns
Toomas Palu
Viroj Tangchareonsathien

Prince Mahidol Award Conference Secretariat Office

**Institute for Population and Social Research
Mahidol University**

Salaya, Phutthamonthon,
Nakhon Pathom 73170, Thailand
Tel: (66) 2441-0202 ext. 139 or 140

Fax: (66) 2441-9333

E-mail: pmaconference@mahidol.ac.th

www.pmaconference.org

