2nd AeHIN General Meeting

September 23-24, 2013
Pan Pacific Manila Hotel, Philippines
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2nd AeHIN General Meeting

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Pan Pacific Manila Hotel, Philippines
## List of Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ADB</td>
<td>Asia Development Bank</td>
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<tr>
<td>aIWG</td>
<td>Innovations Working Group—Asia</td>
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<td>AeHIN</td>
<td>Asia eHealth Information Network</td>
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<td>CDC</td>
<td>US Centers for Disease Control and Prevention</td>
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<td>CRVS</td>
<td>Civil Registration and Vital Statistics</td>
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<tr>
<td>EA</td>
<td>Enterprise Architecture</td>
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<tr>
<td>GIZ</td>
<td>Deutsche Gesellschaft für Internationale Zusammenarbeit</td>
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<tr>
<td>HIE</td>
<td>Health Information Exchange</td>
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<tr>
<td>HingX</td>
<td>Health Ingenuity Exchange</td>
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<td>HIS</td>
<td>Health Information Systems</td>
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<tr>
<td>HL7</td>
<td>Health Level 7</td>
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<tr>
<td>HMN</td>
<td>Health Metrics Network</td>
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<tr>
<td>ICT</td>
<td>Information and Communications Technology</td>
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<tr>
<td>IDRC</td>
<td>International Development Research Centre (Canada)</td>
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<tr>
<td>IHE</td>
<td>Integrating the Healthcare Enterprise</td>
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<td>IHTSDO</td>
<td>International Health Technology Standards Development Organization</td>
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<tr>
<td>IOSN</td>
<td>International Open Source Network</td>
</tr>
<tr>
<td>INSTEDD</td>
<td>Innovative Support to Emergencies, Diseases, and Disasters</td>
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<tr>
<td>ISO</td>
<td>International Standards Organization</td>
</tr>
<tr>
<td>ITU</td>
<td>International Telecommunications Union</td>
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<tr>
<td>NORAD</td>
<td>Norwegian Agency for Development Cooperation</td>
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<tr>
<td>NThC</td>
<td>National Telehealth Center</td>
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<tr>
<td>OpenEHR</td>
<td>Open Electronic Health Record</td>
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<tr>
<td>OpenHIE</td>
<td>Open Health Information Exchange</td>
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<tr>
<td>PEPFAR</td>
<td>US President’s Emergency Plan for AIDS Relief</td>
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<tr>
<td>SDO</td>
<td>Standards Development Organization</td>
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<tr>
<td>SEARO</td>
<td>WHO Southeast Asia Regional Office</td>
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<tr>
<td>UNESCAP</td>
<td>United Nations Economic and Social Commission for Asia and the Pacific</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>WB</td>
<td>World Bank</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<td>WPRO</td>
<td>WHO Western Pacific Regional Office</td>
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Executive Summary

Almost 50 professionals from fourteen countries and five development partners joined the 2nd AeHIN General Meeting at Pan Pacific Manila Hotel, Philippines.

The following objectives were achieved in the meeting:
1) review agreements from the first AeHIN General Meeting in Bangkok August 2012;
2) share updates on country eHealth developments including opportunities and challenges; and
3) craft a roadmap of activities to further strengthen the network and develop eHealth in the region.

Country participants presented their country eHealth updates, lessons learned and challenges with health information systems development. Representatives from Bangladesh, Bhutan, Cambodia, India, Lao (PDR), Malaysia, Maldives, the Philippines, Thailand, Timor-Leste, and Vietnam presented a wide range of eHealth updates from pilot implementation of eHealth solutions in hospitals to national programs and strategies for eHealth.

AeHIN countries demonstrated progress in the four strategic action points of leadership and governance, capacity building, peer assistance/networked, and standards and interoperability.

Development partners from eCGroup, Asian Development Bank, GIZ, Global Fund, and University of Oslo shared their expertise and experience to the participants.

The lack of human resources and local technical capacity for eHealth, poor collaboration among different sectors, limited infrastructure, lack of data appreciation and use for decision making, and weak policy support are common challenges that AeHIN countries are facing. The need for capacity building, strengthening of multi-sectoral collaboration, development of infrastructure, and technical assistance from development partners was thus echoed throughout the meeting.

The AeHIN Regional Strategic Plan 2012-2017 was presented on the first day and mapping of needs and priorities was accomplished in the breakout session on the second day of the meeting.

The Second General Meeting of Asia eHealth Information Network ended with significant inputs from the general assembly on the prioritization of key activities in the strategic implementation plan.

One of the major objectives of the meeting was to obtain consensus among countries on the deliverables of the Network along the lines of its four strategic action points, to wit:
1. Leadership and Governance
2. Capacity Building
3. Peer Assistance/Networking
4. Standards and Interoperability

In the country breakouts, the following activities under each SAP received the highest rankings from the participants:

**SAP 1 Leadership and Governance**

1.1.1 Establish or support maintenance of fully functioning multi-sectoral eHealth/HIS/CRVS coordinating mechanisms in 20 countries

**SAP 2 Capacity Building**

2.1.2 Engage multiple stakeholders to develop national competencies on eHealth/HIS/health informatics in low and middle income countries (e.g., connecting with IMIA Health Informatics Education Technical Working Group and UQ on 40-hour HIS short course, identifying sub national level capacity building institutions and programs)

**SAP 3 Peer Assistance/Networking**

3.1.1 Convene AeHIN General Meeting annually to facilitate knowledge exchange, networking, and to address common challenges

**SAP 4 Standards and Interoperability**

4.2.2 Negotiate service agreements, provide access and training, and collaborate with SDOs to implement eHealth standards and stacks of standards to support national eHealth strategies and plans

Other activities suggested focused on capacity building through the network listed in below:

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<thead>
<tr>
<th>RANK</th>
<th>STRATEGY</th>
<th>COUNTRIES (RANK GIVEN)</th>
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<tbody>
<tr>
<td>1</td>
<td>5-day short course on eHealth for HIS Managers, health IT</td>
<td>Bangladesh (1), Lao (4), Malaysia (3), Myanmar (1),</td>
</tr>
<tr>
<td>2</td>
<td>Internship exchange between countries</td>
<td>Bangladesh (2), Lao (5), Malaysia (4), Myanmar (3), Maldives (3),</td>
</tr>
<tr>
<td>3</td>
<td>Create platform for discussions of tracing programs</td>
<td>Lao (3), Malaysia (5), Myanmar (2)</td>
</tr>
<tr>
<td>4</td>
<td>Develop Data Exchange Policy and Data Dictionary standard</td>
<td>Malaysia (1)</td>
</tr>
<tr>
<td>5</td>
<td>Take inventory of eHealth training</td>
<td>Lao (9), Malaysia (1), Myanmar</td>
</tr>
<tr>
<td></td>
<td>programs</td>
<td>(4), Maldives (4)</td>
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<td>---</td>
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</tr>
<tr>
<td>6</td>
<td>2-3 days advocacy meeting to</td>
<td>Myanmar (5), Maldives (5)</td>
</tr>
<tr>
<td></td>
<td>decision-makers</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Capture user stories/ user needs</td>
<td>Maldives (7)</td>
</tr>
</tbody>
</table>

AeHIN Co-chair Drs Boonchai Kijsanayotin and Alvin Marcelo ended the general meeting by encouraging the participants to keep the connections through the Network's online tools ([www.aehin.org](http://www.aehin.org) and the mailing list). They likewise promised to consolidate the conference output and report back to the community.

Eager to contribute to AeHIN's four strategic area points, Maldives, Indonesia, and Malaysia graciously offered to host future meetings.
Introduction

The 2012 Asia eHealth Information Network Launch Workshop garnered countries in South and Southeast Asia to delve deep in most pressing problems they encounter in handling health information and vital statistics data. While the workshop last year increased awareness on their role as managers of their health information systems and helped them identify needs in these areas, much work on putting together specific action plans that will translate to better health outcomes is necessary.

Central to this year’s general meeting are responses to questions posted last year on the essence of building the AeHIN and updates on eHealth systems across the region. Summarized in four key definitions, countries shared the importance of AeHIN contextualizing the role of the network regionally. Pervasive problems on data collection, management, and use; need for appropriate human resources, and capacity building activities were laid for discussion. Existing solutions were mapped and approach in resolving problems were explored.

Meeting Agenda and Participants

The meeting engaged government officers from ministries of health, information technology, communications, and those working for universal health coverage to showcase eHealth updates in their country defining developments, challenges, and next steps. 49 professionals and fourteen development partners participate in plenary session talks, open fora, and breakout sessions to further identify country and regional priorities deriving from AeHIN’s four strategic thrust.

Organizers

Unique to the meeting is the cooperation of three organizing bodies: the Asia eHealth Information Network, the World Health Organization Western Pacific Regional Office, and the German Cooperation for Development (Deutsche Gesellschaft für Internationale Zusammenarbeit). The AeHIN General Meeting was held in conjunction with two other regional meetings, the Information Technology for Universal Health Coverage and the Regional Workshop on the eHealth Strategy Toolkit which maximizes resources and the presence of key government officers on health.

Meeting Proceedings

This report is organized in three parts: major agreements of the meeting, developments of 2012 and 2013 country priorities, and eHealth updates of countries and presentations of development partners.
Membership

2012-2013 has been crucial year in hyping AeHIN interest and involvement among eHealth and CRVS professionals in the region. From a group of seven individuals in 2011, AeHIN has grown to a hundred in 2012 and 300 plus after the AeHIN General Meeting. The AeHIN Scientific Committee and its members conducted several technical assistance activities, joined meetings, and support conferences to increase reach of the AeHIN. As of November this year, the AeHIN has a total of 334 members across South and Southeast Asia from low and middle income countries. It is also attracting the attention of upper middle income and high middle income countries to share and collaborate with each other in improving the use of ICTs for health. The diagram below shows membership scope in the region.

Figure 1 Map of AeHIN Membership in the region
Opening Remarks

Dr. Boonchai Kijsanayotin
Co-Chair, Asia eHealth Information Network

Welcome everyone, to Asia eHealth Information Network General Meeting! For those coming from overseas, I hope you all had a chance to rest a bit after you arrived. As you all know, Asia eHealth Information Network, or AeHIN for short, is an informal network, supported by WHO, of passionate people like you who are all here from various countries in Asia, to promote better use of ICT to achieve better health through peer-to-peer assistance and knowledge sharing. Many of you here were in Bangkok last year when we had our first AeHIN conference. I’m sure you recognize several familiar faces again this year. We also have several new participants this year too, so welcome all of you first-timers!

Last year, we had a productive meeting in Bangkok where we shared our goals toward eHealth; we discussed needs, challenges, and priorities in achieving eHealth and we agreed in principle on moving forward, together. During the past year, we have been busy formulating a strategic plan, building on what we got from you last year, which will help us move forward. We are excited to propose our strategic and implementation plan, and listen to your feedback in this meeting, as well as to learn about eHealth updates from your country.

Overall, we have 97 attendees from 16 countries gathering here. That’s a huge collective wisdom for our road toward eHealth together. Over the next two days, we hope to have a general consensus on our next steps, specifically on the implementation plan toward eHealth together through AeHIN, with support from WHO, the Norwegian Agency for Development Cooperation or NORAD, and other organizations. I thank developing organizations that help make this meeting possible, and make our network flourish. Most importantly, I thank everyone here for participating and bringing your passion and expertise to our meeting. Let’s have a productive meeting and walk together toward our eHealth vision.
Introduction of Keynote Speaker

Dr. Alvin Marcelo
Chair, Asia eHealth Information Network

Good morning, magandang umaga po sa inyong lahat! I am so happy to see you all here in Manila, despite our very, very wet weather. One trivia about AeHIN, every time there is an AeHIN meeting, Manila gets flooded. So today we are flooded. Last year when we were in Bangkok, when Dr. Boonchai is the host, very same situation. So I think, AeHIN should not happen in Manila again in the future.

Good morning! On behalf of my co-chair, Dr. Boonchai, I welcome everyone to Manila. For today, my role is to introduce our keynote speaker. Although our designated keynote speaker Dr. Jaime Montoya is out of town, we make sure that the context of the speech of Dr. Montoya is preserved and we have here with us is Ms. Merlita Opeña, Chief of PCHRD to share with us the thoughts of the Department of Science and Technology. You might be surprised that this is a health conference, why do we have the Department of Science and Technology giving the keynote. Well, this is an ehealth conference and we all know that ehealth is basically a collaboration of and cooperation both of the ICT (Department of Science and Technology) together with the health sector. When we are selecting our keynote speech for this particular general meeting, we thought that this is also a good time to share with other countries how in the Philippines, the Department of Science and Technology and the Department of Health to have started to formally work together with the National eHealth Strategy. And for me, it was really a ground breaking event when both the secretary of health and the secretary of science and technology, (these are the ministers in the Philippines) signed a joint memorandum, signifying their intention and commitment to work together in pursuing the National eHealth Strategy. And I think, that is something that our speaker will be talking more about.
Our speaker, Ms. Opeña and her team pioneered work in technology transfer of products coming out of research into the commercial space. Most notable is Lagundi, an herbal medicine product here in the Philippines for cough and Sambong, another herbal medicine for kidney stone. She is also a part of the working group which crafted the technology transfer act of 2009 or Republic Act 10055. The expertise of Ms. Opeña is policy formulation. They also pioneered and set in place resources for the health research community in the Philippines. The very popular HERDIN database which you can access at herdin.ph will have the database of research done in the Philippines. The ehealth portal or ehealth.ph a one stop shop for information on ehealth and also introducing ICT in our villages though the community multi-purpose telecenters. Currently, her team set up the Philippine Health Research Registry, a governance and management tool to track what health researches are being done in the country. The registry also includes clinical trials information. She oversees the Philippine Council for Health Research and Development program on eHealth and coordinates with the Department of Health in regard to the DOH-DOST joint program on ehealth. She is the focal person of the Philippine National Health Research System and help in the passage of Republic Act 10532 or the PNHRS Act of 2013.

A career executive service eligible, she completed her academic requirements for Doctor of Business Administration and obtained her MBA at De Lasalle University, A Master of Statistics at the University of the Philippines Diliman, and a Chemical Engineering degree from Mindanao State University.

Ladies and gentlemen please welcome Ms. Merlita M. Opeña.
Keynote Speech

Ms. Merlita M. Opeña
Chief, PCHRD-DOST

Thank you very much Alvin. Dr. Boonchai, the practitioners and professionals of AeHIN, magandang umaga sa inyong lahat. Good morning.

As Alvin said, Dr. Montoya is out of the country, but he is really an eHealth champion. He really wanted to be here with you but unfortunately, he mixed-up his time zones and he thought that he will be coming last night. He’s arriving tonight actually.

We are pleased that you are here in Manila in spite of the rainy typhoon season. Still we welcome you and because these fora are events where you bring in the country and we share also information and expertise in a very challenging field like ehealth. In fact our Minister of Science and Technology, as soon as he assumed office in 2010, he exploited the use of ICT, first in disaster and risk mitigation, but ehealth is a flagship program in the ministry of science and technology and one then is our joint program of coming up of telehealth devices.

Welcome to Manila, we hope that you can also be here in 2015 as we host the Global Forum on health research and hopefully an ehealth track by then.

The Philippine Council for Health Research and Development, Health Research Council is within the Ministry of Science and Technology. Because in other countries, it is in the Ministry of Health. But as the leading agency in implementing the Philippine National Health Research System, networking is our way of life and our core business. Indeed we can be called as network organization. Our way of doing business not like any other government agency, we work with a network of stakeholders all the time. We harness people, institutional and resources in a convergence platform all the
time. So that research benefits the health of the Filipinos and the world citizens.

ICT for health is a major theme in our national unified health research agenda – the health research agenda that we crafted with the ministry of health, the Commission on Higher Education and the National Institutes of Health in the University of the Philippines Manila. As lead institutions working with all the research communities in the country, and we work close with our 17 health research consortia in which most of the time, the Ministry of Health in regional level will lead this consortia. That is how we do business – it is always in a collaborative manner. In terms of the ICT4Health Road map, we have put this in place and it is being constantly refined to ensure that ICT based solutions addressed our citizens' needs to avail and access of health care services given that in an archipelagic country, 60% of our citizens has no access or has minimal access to health professionals or health care. Added to these, our policy makers, practitioners of the public, we need real time information, as it is now, our information are consolidated nationally at least after a year, that is a very long time that the information is generated. These are very important information that if accessed real-time, we can come up with relevant decisions and policies.

We did realize the value of ehealth as early as late 90s, in fact, we’ve worked with the younger Alvin Marcelo in late 90s. But we felt that the idea is there already, because ehealth is a strong demonstration that ICT can impact in people’s lives, but the technology is not that cost effective, the awareness of our policy makers and even the user community are not that in sync yet with the technology. So it takes a long time in terms of the development of ehealth in the Philippines. And we also need a core of professionals like you at the country level which can help policy makers come up with programs on ICT for health or ehealth. So that time, the late 90s, to access the technology on IT, we need high investments, something that we are not in the position to do then that time. And as I have said, we don’t have the critical mass of users, advocates of health informatics professionals.

Today, the hurdles are still many, but one thing that keeps the momentum going is one partnership with the ministry of health. This is very vital because it will tell the success or failure of the ehealth program in the country, because they are the major decision makers in terms of health in the country. The two ministries signed the joint memorandum in terms of the ehealth governance in the country, which will fill up the Philippine health research policy on ehealth development framework. In fact the first ehealth summit, the Philippine eHealth summit will be held on October 18, I hope some of you will come back, but it is still an important time that we have these series of meetings going to the Philippine summit because whatever we learn from here and share with you in terms of the Philippine ehealth agenda.

We thank the presence of AeHIN and IT4UHC events in the country because there will be a spillover of an event that will tap some of your expertise here to help us grow our health information exchange program that will be on September 30 and October 1. Things are moving together so that we mutually
benefit the presence of the experts here in the country. We’re kin to share and learn from you. It is our goal to strengthen our pool of experts in the country. To direct health IT professionals to work on ehealth, because there are many small programs on ehealth in universities but not aligned to what we need in the country as well as to harness our rich resource content socialists to embrace ITC to enhance health service provision. Multi-sectorial approach is the way to go, as our experience showed, not only at the national level, but including sub national levels, down to institution level. Collaboration is very important, but we also recognize that building trust relationship take time. However, we can’t work out successful programs without the users – the ministry of health, health institutions, the other health practitioner groups, specialty groups, specially the ordinary person, he/she has a stake in ehealth as with any other health programs. We don’t want to come up with unused or disconnected programs, and this an enough reason to work together so that our resources will go a long way.

So that is the story of the Philippines in terms of collaboration. It is very important to work together because whatever program we come up, we want these of benefit to the society especially with us in the government because it is a public trust kind of work. We need to be transparent and accountable to our tax payers. Thank you very much and welcome again to Manila.
AeHIN: A Network of Sharing, Learning, Volunteerism, and Friendship

Summarized in four key definitions, countries shared how important they see AeHIN and its role in achieving better use ICTs for better health.

Sharing
A country may have the same problem as another. By listening to each other’s experiences, eHealth professionals at AeHIN arrive at solutions without starting at square one. Tagged as “Adaptive Technical Assistance”, needs of each country could be linked to one another developing partners to see “value of resources in” and “values out of it”.

Learning
Capacity building does not come cheap. Through AeHIN, members garner economies of skill that is powerful and influential in teaching “how to do things” and “how not to do things”. To achieve this, AeHIN’s focus should be on the major and most pressing problems of the region and the resources needed. There are a lot of capacity building activities and the challenge now is to choose on what area the network should walk on.

Volunteerism
Despite the limited resources, AeHIN works out of passion. Individuals seek new ways in improving health care, seeing it as their own responsibility. The mantra is “provide what you can provide”. No one will say what is right or wrong. Members
take the hard work to know what they need and own the available solution that will work best for them.

**Friendship**
When we help friends, friends will help us. At AeHIN, members are passionate in the task ahead. They come together like working in a battle, pursuing through difficult agendas together that will eventually have a multiplier effect all throughout.

**AeHIN Challenges**
The open fora laid on the table country and cross country issues and challenges.

1) **Efficient Collection of Health Data**
Countries admitted that they have difficulty in collecting birth and death data most especially in rural areas. The existing solution: biometrics and electronic chips which can be embedded in national IDs like what Indonesia and Thailand are doing. However more debate lies on health data' security, privacy, and confidentiality.

2) **Aggregation of data from the villages**
District Health Information System was on spotlight. AeHIN Members in Bangladesh shared the coverage of DHIS in their country and its proven robustness in collecting data from villages and organizing it for use at different levels. However, more support is needed for internet connectivity at root level of submission and manpower to work on the data. OpenMRS is also suggested as another way of data collection.

3) **Connecting health information systems**
The need: data dictionary and its accompanying semantic and syntactic definitions, understanding of the encounter and visit, and consideration of standards for terminology like ICD-10. The Integrating Healthcare Enterprise (IHE) was seen as a tool for interoperability to happen. Sustainability on the use of standards was and will always be an issue.

4) ** Responsible data collection**
Preserving the integrity and availability of data is a task. Primary health workers are seen as front liner in the system and are now very important in the data collection cycle.

5) **Enterprise Architecture synonymous to City Planning**
Sustainability on the use of standards was and will always be an issue. To perform eHealth, EA shall be a consensus among countries. Models like Zachman, TOGAF, FEA, Gartner, and even hybrids of them are most useful only when tailor fit in a country's context. Like city planning, EA thinks of the various components and how it will affect each other.

6) **Investing on more on people rather than technology**
Telemedicine and Teleconsultation are largely driven by champions. Since technology can be outdated in a few years' time, long term and sustainable eHealth solutions anchored on vital workflows in health care setting relies on people leading the systems.
Regional and In-Country Priorities of AeHIN

Dr. Alvin Marcelo, AeHIN Chair, presented specific strategic action plans (SAP) based on AeHIN’s four strategic thrusts. Countries ranked them based on their country’s priority. Results were summarized as (1) Priority Action Plan for the Region and (2) Priority Action Plan for Each AeHIN Member Country.

Regional Priorities

Priority action plan for the region were ranked based on two factors: the number of countries who considered the strategy as part of their priorities and the average of priority ranking given they gave. The weight is based on the formula: (the no. of countries) x (1/average of the non-zero ranking point given).

Top three priorities on each of the strategic thrust were listed. The ranks marked by the colored dots below are based on the weight of each country’s rank compared to the average rank they gave. The degree of priority denoted below start from 1 (orange) as the top priority to 12 (grey) as last priority.

Leadership and Governance

Top three priorities under Leadership and Governance are:

1.7.1 Collaboration with partners on eHealth (with Malaysia as their top 7 priority, Nepal on top four priority, five countries: Bangladesh, Cambodia, Lao PDR, and Myanmar resulted to have this as their top 3 priority, Philippines and Viet Nam as their top 2),
1.1.1 Establishing formal multisectoral eHealth networks (Myanmar as its top 5 priority, Bangladesh and Indonesia said this is their top 4 priority while Nepal said its their top 3 priority, Philippines on top 2, Bhutan and Viet Nam as top 4 priority, Cambodia and Myanmar on top priority)

1.5.3 Sharing of eHealth policies (Nepal on top 7, Viet Nam as its 6 priority, Bhutan on top 3, and three countries: Bangladesh, Cambodia, and Myanmar have this as their top priority)

As a region, efforts under this thrust must prioritize collaborative activities on eHealth to be conducted in the next years. The design and approach of any technical assistance under this thrust should depend on how each country prioritize this activity at a regional perspective.

**Capacity Building**

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<th>Rank</th>
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<tbody>
<tr>
<td></td>
<td>Bangladesh</td>
</tr>
<tr>
<td>1.2</td>
<td>Define national competencies for eHealth knowledge and skills</td>
</tr>
<tr>
<td>1.3</td>
<td>Develop national associations and national conferences on eHealth</td>
</tr>
<tr>
<td>1.1</td>
<td>Inter-university collaboration on curriculum development (formal and informal)</td>
</tr>
</tbody>
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*Figure 4 Capacity Building Priority in the Region*

Top three priorities under Capacity Building:

2.1.2 Define national competencies for eHealth knowledge and skills (top 5 for Bhutan, top 4 for Viet Nam, top 3 for Maldives, top 2 for Lao PDR and Malaysia, and top 1 for Bangladesh, Cambodia, India, Myanmar, and Philippines)

2.1.3 Develop national associations and national conferences on eHealth (top 4 for Bhutan, Cambodia, Indonesia, top 3 for Bangladesh and Philippines, top 2 for Malaysia, Myanmar, Nepal and top priority for Lao PDR)

2.1.1 Inter-university collaboration on curriculum development (formal and informal) (top 8 for Cambodia, top 7 for Bhutan, top 6 for Malaysia, top 5 in Bangladesh and Lao PDR, TOP 3 FOR Nepal and Viet Nam, and top 2 in India, and Maldives)
### Peer Assistance

<table>
<thead>
<tr>
<th>Rank</th>
<th>Peer Assistance</th>
<th>Bangladesh</th>
<th>Bhutan</th>
<th>Cambodia</th>
<th>India</th>
<th>Indonesia</th>
<th>Lao PDR</th>
<th>Malaysia</th>
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<th>Thailand</th>
<th>Viet Nam</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.1.1 AeHIN General Meeting</td>
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<tr>
<td></td>
<td>3.1.4 Support integration of fragmented HIS-CRVS systems</td>
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</tr>
<tr>
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<td>3.2.1 Share eHealth documents in aehin.hingx.org</td>
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</tbody>
</table>

Figure 5 Peer Assistance Priority in the Region

Top three priorities in Peer Assistance:

3.1.1 AeHIN General Meeting (top 4 for Bangladesh and Philippines, top 3 in Viet Nam, and top priority for Bhutan, Cambodia, India, Lao PDR, and Myanmar)

3.1.4 Support integration of fragmented HIS-CRVS systems (top 4 for Bhutan and Nepal, top 3 for Lao PDR and Viet Nam, top 2 in Cambodia, Malaysia, Maldives, and Philippines and top priority of Bangladesh and Myanmar)

3.2.1 Share eHealth documents in aehin.hingx.org (top 5 in Cambodia, top 4 in Malaysia and Myanmar, top 3 in Bangladesh, Bhutan, India, and Philippines, top 2 in Lao PDR and top priority in Maldives and Viet Nam)

### Standards and Interoperability

<table>
<thead>
<tr>
<th>Rank</th>
<th>Standards and Interoperability</th>
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<th>Bhutan</th>
<th>Cambodia</th>
<th>India</th>
<th>Indonesia</th>
<th>Lao PDR</th>
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<tr>
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<td>4.2.2 Interact with Standards Development Organizations for access, training, etc</td>
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<tr>
<td></td>
<td>4.2.3 Produce national enterprise architecture/health data standards documents</td>
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<td>✔</td>
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<td>4.2.1 Conduct country-wide health data standards and interoperability workshops</td>
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</tr>
</tbody>
</table>

Figure 6 Standards and Interoperability in the Region

Top three priorities in Standards and Interoperability:

4.2.2 Interact with Standards Development Organizations for access, training, etc (top 4 in Cambodia, top 3 in Bangladesh, and top 2 in Bhutan and Philippines)
4.2.3 Produce national enterprise architecture/health data standards documents (top 7 in Bangladesh, top 5 in Bhutan, top 4 in Philippines, top 3 in Lao PDR and Nepal, top 2 in Malaysia and Myanmar, top 1 in Cambodia and Viet Nam)

4.2.1 Conduct country-wide health data standards and interoperability workshops (top 6 in Bangladesh, Cambodia, and Myanmar, top 5 in Malaysia, top 4 in Viet Nam, top 3 in the Philippines, top 2 in Lao PDR and Nepal.

**Additional Action Plans**

<table>
<thead>
<tr>
<th>Rank</th>
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<td>5-day short course on eHealth for HIS Managers, Health IT</td>
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<tr>
<td></td>
<td>Internship exchange between countries</td>
</tr>
<tr>
<td></td>
<td>Create a platform for discussions of training programs</td>
</tr>
<tr>
<td></td>
<td>Develop Data Exchange Policy and Data Dictionary Standards</td>
</tr>
<tr>
<td></td>
<td>Take Inventory of eHealth Training programs</td>
</tr>
<tr>
<td></td>
<td>2-3 day advocacy meeting to decision makers</td>
</tr>
<tr>
<td></td>
<td>Capture user stories/needs</td>
</tr>
</tbody>
</table>

Countries added additional action plans and specific activities to be conducted in the next months. Following are summarized activities they have added listed according to its rank:

1. 5-day short course on eHealth for HIS Managers, Health IT (top 4 in Lao PDR, top 3 in Malaysia, and top 1 in Myanmar and Bangladesh)
2. Internship exchange between countries (top 5 in Lao PDR, top 4 in Malaysia, top 3 in Maldives, and Myanmar, and top 2 in Bangladesh)
3. Create a platform for discussions of training programs (top 5 in Malaysia, top 3 in Lao PDR, and top 2 in Myanmar)
4. Develop Data Exchange Policy and Data Dictionary Standards (top 1 in Malaysia)
5. Take Inventory of eHealth Training programs (top 9 in Lao PDR, top 4 in Maldives and Myanmar, and top 1 in Malaysia)
6. 2-3 day advocacy meeting to decision makers (top 5 in Maldives and Myanmar)
7. Capture user stories/needs (top 7 in Maldives)
**Country Priorities**

Countries rank SAP in each strategic thrust (ex. Leadership and Governance has twelve SAP to rank while Capacity Building has eight SAP to rank and so on). For every country, top three ranks were identified and plotted in the SAP matrix. Top priority is marked with an orange dot, 2nd priority with a blue dot, and third priority with a black dot.

**Leadership and Governance**

Leadership and Governance in AeHIN is viewed as enhancing the leadership, sustainable governance, and monitoring and evaluation on eHealth, HIS, or CRVS implementations. Both formal and non-formal sectors have vital roles to take their country from resources mapping, mobilization, to utilization. Enabling environments to support implementation as well as evaluation systems are also components of this thrust.

In the figure above, establishing formal multi-sectoral eHealth networks is Bhutan and Viet Nam’s top SAP. Lao PDR and Philippines ranked it second and Nepal ranked it on third. Consider pre-existing conditions, this priority would mean engaging government officers and ministries working on eHealth and statistics (ministries of health, ICT, science and technology, statistics, planning, budgeting and finance) to take greater accountability on eHealth endeavors regardless of...
the level of implementation they are in. In Viet Nam alone, the problem lies not on the lack of telemedicine regulation or framework but to whom will telemedicine costs be levied. Most patients can’t afford its cost. If this problem persists, efficiency in delivering health care services through telemedicine will go to waste. If the government will step in, the story will be different.

Lao and Nepal placed establishing informal eHealth networks as their first priority. The Philippines ranked it second same as the former SAP, establishing formal multisectoral eHealth network.

Only Maldives ranked conducting regional capacity building activities as its top priority. While India’s top priority (and Myanmar’s second priority) is on quantifying eHealth Investments, its third priority is on research on monetary and non-monetary benefits of eHealth. Stakeholder analysis across private and public sectors is second priority of Bangladesh and Nepal. Myanmar’s top priority is on engaging partnerships on national and regional eHealth/HIS/CRVS plans while Lao PDR ranked it third. Bangladesh and Cambodia ranked sharing of eHealth policies as most important priority. Maldives ranked it second while Bhutan and Viet Nam ranked it third. Bhutan, Cambodia, and India ranked capacity building activities on eHealth evaluation as second on its priority and implementing country assessments and progress reviews to feedback country improvements is Maldives’ third priority.

**Capacity Building**

<table>
<thead>
<tr>
<th>Capacity Building</th>
<th>Bangladesh</th>
<th>Bhutan</th>
<th>Cambodia</th>
<th>India</th>
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<th>Lao PDR</th>
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<th>Philippines</th>
<th>Thailand</th>
<th>Viet Nam</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.1 Inter-university collaboration on curriculum development (formal and informal)</td>
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<td>✔️</td>
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<td>2.1.2 Define national competencies for eHealth knowledge and skills</td>
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<tr>
<td>2.1.3 Develop national associations and national conferences on eHealth</td>
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<tr>
<td>2.2.1 Engage non-health stakeholders into eHealth</td>
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<tr>
<td>2.2.2 Conduct public fora on ethico-legal and privacy on eHealth</td>
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<td>2.2.4 Webmeetings for sustained participation (in-country and region)</td>
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</tr>
</tbody>
</table>

Figure 2 Capacity Building

Capacity building ensures that countries continually equip themselves with knowledge, skills, and resources needed to build and maintain a sound
intervention. Inter-university collaboration is second priority of India, Maldives, and the Philippines while Myanmar and Viet Nam tagged it as their third. Five countries (Bangladesh, Cambodia, India, Myanmar, and Philippines) ranked defining national competencies for eHealth knowledge and skill as their top priority, Maldives said it is their third priority, and two countries (Lao PDR and Malaysia) said it is their second priority.

Developing national associations and national conferences on eHealth is second priority of Nepal and Myanmar while it is third to Bangladesh and Philippines and top to Lao PDR and Viet Nam. Only India view that joint research on eHealth is a third priority.

Engaging non-health stakeholders in eHealth is top priority of Nepal and Bhutan.

Conducting public for on ethico-legal privacy on eHealth is second priority of India and Viet Nam as Bhutan views this as third among its priority. Only Cambodia ranked webmeetings as third to its priority.

Peer Assistance/Networking

<table>
<thead>
<tr>
<th>Peer Assistance/Networking</th>
<th>Bangladesh</th>
<th>Bhutan</th>
<th>Cambodia</th>
<th>Indonesia</th>
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<td>3.1.4 Support integration of fragmented HIS-CRVS systems</td>
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<td>3.1.5 Use AeHIN mailing list/website</td>
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<td>3.2.1 Share eHealth documents in aehin.hingx.org</td>
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<td>3.2.3 Recognize Centers of eHealth Excellence</td>
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</table>

Figure 3 Peer Assistance and Networking

Peer Assist is learning before doing. It comes from the concept that advice is sought from someone who is doing or has done a somewhat similar activity. Looking at the SAP matrix, five countries (Bhutan, Cambodia, India, Lao PDR, and Malaysia) ranked participating in the AeHIN General Meeting as their top priority while Myanmar and Viet Nam ranked it as its second priority. On the other hand, three countries (Cambodia, Malaysia, and Maldives) ranked supporting the integration of fragmented HIS-CRVS systems as their second priority. Similarly, three countries (Bangladesh, Myanmar, and Philippines) ranked the use of AeHIN mailing list/website as their top priority while Lao PDR and Viet Nam ranked it as third. Bhutan, India, and Philippines said that sharing of eHealth documents in HingX is their third priority while two countries, Maldives and Viet Nam ranked it as
their top priority and Lao PDR and Nepal ranked it as their second priority. Finally, Nepal’s top priority is to recognize Centers of eHealth Excellence.

**Standards and Interoperability**

<table>
<thead>
<tr>
<th>Standards and Interoperability</th>
<th>Bangladesh</th>
<th>Bhutan</th>
<th>Cambodia</th>
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<th>Viet Nam</th>
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</thead>
<tbody>
<tr>
<td>4.12 Training on TOGAF (enterprise architecture)</td>
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<td><img src="logo-b.png" alt="Cambodia" /></td>
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<tr>
<td>4.2.1 Conduct countrywide health data standards and interoperability workshops</td>
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<tr>
<td>4.2.2 Interact with Standards Development Organizations for access, training, etc</td>
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<tr>
<td>4.2.3 Produce national enterprise architecture/health data standards documents</td>
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<td><img src="logo-b.png" alt="Cambodia" /></td>
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<td><img src="logo-b.png" alt="Viet Nam" /></td>
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</tbody>
</table>

**Figure 4 Standards and Interoperability**

Identifying standards and implementing them are two different things. Standards in collecting and managing health information are important to ensure that information systems can exchange and share data in a way understandable within systems.

In the figure above, Bangladesh, Cambodia, and Viet Nam’s second priority is to engage their countries on TOGAF training. Three countries (Lao PDR, Myanmar, and Nepal) cited conducting countrywide health data standards and interoperability workshops as top priority while it is Philippines’ third priority. Interacting with Standards Development Organizations for access, training, etc is top priority of Lao PDR, Myanmar and Nepal and two (Bangladesh, Malaysia) countries said its their third priority. Three countries (Malaysia, Maldives, Myanmar) expressed that producing national enterprise architecture/health data standard documents is their second priority. Cambodia and Vietnam ranked it as their top priority and Lao PDR and Nepal said its their third priority.
Developments of Country Priorities from 2012 to 2013 AeHIN General Meeting

The 2012 AeHIN Launch Workshop introduced to the network four strategic thrusts which are key areas where the network works. More than analyzing strengths and weaknesses in their existing systems, countries also identified their priorities for the next six months to one year. This provided the network an overview of the current situation in the region which help it scan for resources to address needs. In the 2013 AeHIN General Meeting, countries presented updates on their eHealth systems and reported their challenges and next steps. The matrix below provides the an excellent opportunity to monitor developments of country priorities as AeHIN move towards a more structured search for priorities embedded in the strategic action plan.

Bangladesh

<table>
<thead>
<tr>
<th>2012 AeHIN Launch Workshop</th>
<th>2013 AeHIN General Meeting</th>
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<tbody>
<tr>
<td>Leadership and Governance</td>
<td>Leadership and Governance</td>
</tr>
<tr>
<td>Bangladesh will be formulating / organizing a National Steering Committee to create the National E-Health Strategy following WHO Guidelines. This includes formulating an HIS operational plan which will define the following:</td>
<td>1.5.3 Share eHealth Policies (1st Priority)</td>
</tr>
<tr>
<td>- how to distribute ICT in health at all levels</td>
<td>1.4.1 eHealth Stakeholder analysis: public and private (2nd Priority)</td>
</tr>
<tr>
<td>- how to strengthen trainings on health and IT and promote mHealth (ex. via mobile phones)</td>
<td></td>
</tr>
<tr>
<td>- how to implement a feedback, monitoring, and evaluation scheme</td>
<td>Moving forward in 2016, Bangladesh envisions finalizing a National eHealth Standards and Interoperability Framework and an Electronic Registry Systems connected through health information exchange to have a single source of information and remove duplication. These registry systems will include geo-locations, health organizations, healthcare professional, population through lifetime electronic health records and assets.</td>
</tr>
<tr>
<td>- how to instigate policies on eHealth/HIS/CRVS that will cover both public and private sector.</td>
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Bhutan

<table>
<thead>
<tr>
<th>2012 AeHIN Launch Workshop</th>
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<tbody>
<tr>
<td>Capacity Building and Peer Assistance</td>
<td>Capacity Building</td>
</tr>
<tr>
<td>Sharing experience through meetings/Workshop and human resource training on ICT in health is top priority of Bhutan.</td>
<td>2.2.1 Engage non-health stakeholders into eHealth (1st Priority)</td>
</tr>
<tr>
<td>Bhutan reported that more specific needs like improving ICT infrastructure, developing specification of ICT in health projects and its documentation could be addressed by establishing a community of practice,</td>
<td>2.2.2 Conduct public fora on ethico-legal and privacy on eHealth (3rd Priority)</td>
</tr>
<tr>
<td></td>
<td>Peer Assistance and Networking</td>
</tr>
<tr>
<td></td>
<td>3.1.1 AeHIN General Meeting (1st Priority)</td>
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<tr>
<td></td>
<td>3.1.5 Use AeHIN mailing list/website (2nd Priority)</td>
</tr>
<tr>
<td></td>
<td>3.2.1 Share eHealth documents in</td>
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knowledge, and experience on eHealth, HIS, and CRVS.

<table>
<thead>
<tr>
<th>aehin.hinx.org (3rd Priority)</th>
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<tbody>
<tr>
<td>Next steps are the development of Telemedicine Consultation System, development of ICT Masterplan, and design of eHealth Service Delivery platform in Health Services.</td>
</tr>
<tr>
<td>Lack of national policy on eHealth is one of the major challenges. To address this, Bhutan works to establish legal and ethical frameworks for eHealth. ICT Infrastructure is another challenge.</td>
</tr>
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**Cambodia**

<table>
<thead>
<tr>
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<tr>
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</tr>
<tr>
<td>Cambodia will set-up a working group that will create action development for 2008-2015. A dialogue with policy makers to get their commitment on suggested actions will be rallied. They propose to coordinate and learn from India’s and/or other country experience on identifying and involving appropriate agencies in their Ministry of Health for HIS endeavor. On improving capacities, they would work on conducting small group discussion to identify the gaps on the existing and desire needs (what we have, what we need analysis) and study challenges for action planning. Other priority, MoH and relevant Ministries will reinforce the implementation of eHealth and mHealth, HIS and CRVS by improving coordination and sharing information and action plan among stakeholders.</td>
<td>1.5.3 Sharing of eHealth policies (1st Priority) 1.6.1 Capability-building on eHealth Evaluation (2nd Priority)</td>
</tr>
<tr>
<td>National Health Portal expected to be launched in October 2013 while APAMI 2014 Conference and IMIA General Assembly is to be held in New Delhi India.</td>
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**India**

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</tr>
<tr>
<td>India will identify responsible agencies on HIS in their Ministry of Health and will form discussion groups to identify the gaps, challenges, and set-up action plan and recommendation. They plan to coordinate and engage with policy makers to get their commitment on HIS.</td>
<td>1.5.3 Sharing of eHealth policies (1st Priority) 1.6.1 Capability-building on eHealth Evaluation (3rd Priority)</td>
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<td>National Health Portal expected to be launched in October 2013 while APAMI 2014 Conference and IMIA General Assembly is to be held in New Delhi India.</td>
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### Lao PDR

#### Leadership and Governance

Lao will share workshop summary and recommendation of their October-November 2012 plan and review their 5 year strategic plan (December 2012). By the end of September 2012, they should have a concept note/proposal and undergo training on HIS. For the coming year, they will start rolling out their capacity building initiatives.

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<td>Lao will share workshop summary and recommendation of their October-November 2012 plan and review their 5 year strategic plan (December 2012). By the end of September 2012, they should have a concept note/proposal and undergo training on HIS. For the coming year, they will start rolling out their capacity building initiatives.</td>
<td>Leadership and Governance</td>
</tr>
</tbody>
</table>
| 1.1.1 Establish FORMAL multisectoral eHealth networks (2nd Priority)  
1.1.2. Establish informal eHealth networks (1st Priority) | In the coming years Lao PDR will improve on HIS monitoring and evaluation framework. They will improve not just HIS but also hospital and financial management (web-based reporting, CRVS). |

### Malaysia

#### Leadership and Governance

Establish a committee to monitor implementation and consolidation of electronic health data sharing between Ministry of Health and the National Registration Department on birth registration. The committee will specifically monitor the efficiency of various aspects of the system such as staff entering the data, backend data monitoring, and harmonize / validate data. Key performance indicators will be set to evaluate improvement. Malaysia will start a health data warehouse by 2012 and conduct HIS interoperability summit by 2013. The summit will involve public, private, and international consultation on HIS output, will show interoperability endeavors, and benchmark best practices/criteria for HIS.

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<td>Establish a committee to monitor implementation and consolidation of electronic health data sharing between Ministry of Health and the National Registration Department on birth registration. The committee will specifically monitor the efficiency of various aspects of the system such as staff entering the data, backend data monitoring, and harmonize / validate data. Key performance indicators will be set to evaluate improvement... Malaysia will start a health data warehouse by 2012 and conduct HIS interoperability summit by 2013. The summit will involve public, private, and international consultation on HIS output, will show interoperability endeavors, and benchmark best practices/criteria for HIS.</td>
<td>Leadership and Governance</td>
</tr>
<tr>
<td>1.4.3. Foster partnerships and collaboration on national eHealth/HIS and CRVS plans (3rd Priority)</td>
<td>Malaysia’s vision is to be a Digital Malaysia in 2020 where health information systems are connected with each other through lifetime health record. National health data dictionary, Malaysian drug codes, and health informatics standards like ICD-10, SNOMED-CT, HL7 are identified as means to operationalize the plan.</td>
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### Maldives

No data as Maldives were not able to attend the 2012 AeHIN Launch Workshop.

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</tr>
<tr>
<td>No data as Maldives were not able to attend the 2012 AeHIN Launch Workshop</td>
<td>Maldives will support development of IT standards to support eHealth Strategy and Health Information Policy and will continue the MIHS software development/modification and implementation. Strengthening mHealth initiatives to support clinical and public health use telemedicine is also a priority. Maldives is also looking for linking all public hospitals and Ministry of Health with video conferencing technology.</td>
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### Mongolia

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<tbody>
<tr>
<td><strong>Peer Assistance</strong></td>
<td>No data provided</td>
</tr>
<tr>
<td>Mongolia is keen on scanning best practices in the region to generate knowledge on eHealth, and most specific to CRVS. A regional and peer-to-peer approach on understanding standards and interoperability will be set.</td>
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### Myanmar

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<tr>
<td><strong>Capacity Building</strong></td>
<td>No data provided</td>
</tr>
<tr>
<td>Capacity building activities and intervention for data management, basic software training, advocacy skills are much needed in Myanmar. Improving data transmission system — national data warehouse will be done in the coming year.</td>
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### Nepal

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</tbody>
</table>
| Assessment of health sector information system (HSIS) strategy in line with WHO e-Health strategy recommendation is top priority. Developing standards on health facility registry, service provider registry, and unified coding system – human resources, training, equipment would help address the need. System migration among various HIS to one portal is seen as solution for efficient data exchange. As regard to capacity building initiatives more support and resources is necessary for health informatics, sentinel surveillance, and ICD-10. | 1.1.1 Establish FORMAL multisectoral eHealth networks (3rd Priority)  
1.1.2. Establish informal eHealth networks (1st Priority)  
Needs are focused on technical support, capacity building activities to improve human resources for ICT, and financing and for pilot testing ideas and solutions |
### Philippines

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<tr>
<td>eLearning systems, training on standards, annual national and sub national e-health conferences, equipping the country with licenses of use on HL7, SNOMED, and consultation for national e-health strategy toolkit implementation support are major priorities to escalate existing eHealth, HIS, CRVS implementation.</td>
<td>1.1.1 Establish FORMAL multisectoral eHealth networks (2nd Priority)</td>
</tr>
<tr>
<td>1.1.2 Establish informal eHealth networks (2nd Priority)</td>
<td>1.1.1 Establish FORMAL multisectoral eHealth networks (2nd Priority)</td>
</tr>
<tr>
<td>It is Philippine’s priority to establish a certifying body to support the national data reporting and health information exchange. The Philippine Health Information Exchange is also planned to be expanded through networks by creating subgroups in Health Information Exchange and National Telehealth Steering Committee. Continuous update on the Data Privacy, Data Access and Sharing policies will be done.</td>
<td>1.1.2 Establish informal eHealth networks (2nd Priority)</td>
</tr>
<tr>
<td>Telemedicine will be expanded to 405 sites throughout the country with the implementation of the eClaims system</td>
<td>1.1.2 Establish informal eHealth networks (2nd Priority)</td>
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### Viet Nam

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<tr>
<td><strong>Peer Assistance</strong></td>
<td><strong>Peer Assistance</strong></td>
</tr>
<tr>
<td>Establishing community practice that will support creation of short course for policy makers to legislate/regulate HIS implementation is a top priority in Viet Nam. eHealth promotion through workshops, conferences could help support awareness on this domain. Short courses on a specific topic, e.g., using MS excel, or MS access, using public health data and training is suggested. Furthermore, there is emphasis on developing training materials published in their local language.</td>
<td>3.1.1 AeHIN General Meeting (2nd Priority)</td>
</tr>
<tr>
<td>3.1.4 Support integration of fragmented HIS-CRVS systems (3rd Priority)</td>
<td>3.1.4 Support integration of fragmented HIS-CRVS systems (3rd Priority)</td>
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<tr>
<td>3.2.1 Share eHealth documents in aehin.hingx.org (1st Priority)</td>
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</tr>
<tr>
<td>Priorities are:</td>
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</tr>
<tr>
<td>• developing eHealth strategy,</td>
<td>• developing eHealth strategy,</td>
</tr>
<tr>
<td>• IT in health standards,</td>
<td>• IT in health standards,</td>
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</tbody>
</table>
| • legal framework on health activities in networking, data center, e-administration, public services, HIS and medical insurance payment, HIS, applying IT in basic health, health information technology human resources and IT infrastructure of MOH. | • legal framework on health activities in networking, data center, e-administration, public services, HIS and medical insurance payment, HIS, applying IT in basic health, health information technology human resources and IT infrastructure of MOH."
AeHIN eHealth Country Updates
eHealth development in Bangladesh has made a leapfrog during the last three to four years. Back in 2009, Bangladesh started with almost zero infrastructures. But with the collaborative efforts from different ministries, Bangladesh has made an impressive growth on eHealth. Bangladesh built their eHealth program using the three principles:

1. Improving health systems efficiency, which means quick information and decision, and better decision.
2. Bridging urban-rural digital divide by scaling eHealth to community clinics and community health workers, and capturing denominators.
3. Reaching the citizens through services to and empowerment of citizens.

From almost zero infrastructures, Bangladesh already established a central data center and started the nationwide rollout of Internet connectivity up to the community level. District Health Information System 2 (DHIS2) is also being used for aggregated data collection.
Aside from the improvement on infrastructure, the ministry of health also did capacity building. Health supervisors conducted health education to the health personnel of the community clinics to further enhance their knowledge.

To further improve the health systems efficiency, Bangladesh already started automation of hospital processes using the OpenMRS (Open Medical Record System) platform. In fact, Bangladesh Secretariat Clinic is already practicing paperless system over the last two years. In addition to the Bangladesh Secretariat Clinic, another five (5) public hospitals are about to be automated. The ministry of health’s plan is to automate all public hospitals in the next five (5) years.

DHIS2 Implementation in Bangladesh

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There have been several mHealth activities that encompass various applications of mobile phones to health service for district and subdistrict level, telemedicine service, and citizen empowerment using automated complaining system. Telemedicine services are implemented in 8 tertiary hospitals, 22 UISCs and are set to be rolled out to 18,000 community clinics.

Displayed in 800 in boards in 800 hospitals are messages that give citizens the opportunity to send their complaints to the Ministry of

Honorable PM watching Telemedicine Demo in eAsia 2011
Health using their cellular phones. The upper part tells about mobile health service while the lower part is about the complaint-suggestion. There is one dedicated staff that sees the message, talks to sender, and takes action. Automatic reports are sent to Honorable Minister by email.

The vision for 2016 is to work towards standardization and interoperability so that there is a single source of all information, no duplication, no data conflict, and participated in by state and non-state providers. The task is to develop a NationaleHealth Standards and Interoperability Framework and electronic registry systems connected through health information exchange to have a single source of information and remove duplication. These registry systems will include
geo-locations, health organizations, healthcare professional, population through lifetime electronic health records and assets.

Plans to automate civil registration and vital statistics system were also put into discussions. Comprehensive assessment of the national CRVS system was taken to identify strengths and weaknesses resulting to the development of a strategic action plan. To continue what the Ministry of Health already started, they are already collaborating with other stakeholders and ministries in enhancing their programs. Focus on establishment of standards is one of their major tasks for the upcoming years including the development of eHealth Enterprise Architecture as well as strengthening the use of ICD-10 in collecting cause of mortality data.
We conducted a comprehensive assessment of national CRVS systems and identified strengths and weaknesses that helped develop a strategic action plan. Three major public stakeholders – the MOH, MOLG, and MOPL will work together for an integrated system. The MOH has a stock of electronic records of 120 million citizens, MOLG has an electronic birth and death registration system, and MOPL has a plan to make national population register. The National Election Commission has 90 million electronic voter rolls.

The immediate interim measure include Bangladesh MOH developed & endorsed a Country Accountability Framework as recommended by Commission on Information & Accountability (COIA) on Women’s & Children’s Health. We have started with registration & tracking of each pregnant woman & under-5 child. We are using DHIS 2.12 individual tracker for this purpose.

Most of the activities in CRVS plan for 2013-2014 will strengthen existing and scale up existing systems. We will complete providing of tablets to rest of Community Health Workers, strengthen Country Accountability Framework for COIA, develop eHealth Enterprise Architecture (EHEA), integrate citizen’s electronic health records (EHR) with EHEA, roll out COIA models towards fully covered CRVS, strengthen ICD-10 in hospitals -- introducing verbal autopsy to collect cause of death data from community using ICD-10, and enhance collaboration with stakeholders.
Amidst the advances that have been made in recent years, Bangladesh faces a number of needs and challenges. It recognizes the need for global knowledge on how countries taking forward their electronic CRVS including full coverage & updating. A center for excellence which will be responsible for controlling/managing eHealth activities is needed. Increasing capacity development opportunities (course, scholarships, research) for the potential eHealth expert and drug management infrastructure to stop misuse of medicine are also needed.

Challenges include gaining the highest policy support for strengthening CRVS Systems, enhancing collaboration between multiple stakeholders, developing business case for sustainability, inter ministerial communication strengthening, incorporating eHealth, HIS and other standards, and further promoting information use.
**eHealth Updates in Bhutan**

**Thinley Wangmo**  
Telemedicine Focal Person  
Dept. of Medical Services, MOH

The Ministry of Health’s ICT initiatives focused on information management and efficiency improvement in healthcare services over the past few years. Development of Bhutan Health Management Information System is one of the impactful ICT initiatives. The health management information system is being used primarily in monitoring changes in disease incidence/prevalence and other activities which guides the Ministry of Health in prioritizing interventions at all levels.

In addition, Bhutan Medical Supply Chain System was also put into place. The medical supply system tracks the procurement and distribution of medical supplies.
Telemedicine system is also being implemented in Bhutan. Implemented last 2009, 14 rural sites were provided with laptops, vital signs monitor, portable ECG machines and compatible software to interface with the equipment. The project was implemented with the objective of providing a forum for the doctors at the remote districts to conduct teleconsultations from the rural areas to the medical specialists at the national referral hospital.
The following table described the review of the project.

### Table 1: Telemedicine Review of Project

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Total Consultation</th>
<th>Replied</th>
<th>Pending</th>
</tr>
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<tbody>
<tr>
<td>April – June 2009</td>
<td>24</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>July 2009 – June 2010</td>
<td>30</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>9 (17%)</td>
<td>45 (83%)</td>
</tr>
</tbody>
</table>

Low utilization rate of the system was attributed to the following findings:

1. Power outrages
2. Problem with Internet connectivity
3. Reshuffling/relocation of trained personnel to other health facilities
4. Reluctance of doctors to use the system and;
5. Unavailability of Clinical Experts

To improve the telemedicine system, the Ministry of Health relocated five (5) non-functioning sites to other district hospitals with more reliable resources. In addition, instead of the national referral system, teleconsultation was regionalized. Two (2) regional hospitals were assigned as referral centers; Mongar Regional Hospital covering the Eastern Region and Gelephu Central Regional Hospital for the Central and Southern regions. Such actions resulted to the following:

### Table 2: Telemedicine Review of Project after Restructuring

<table>
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<tbody>
<tr>
<td>January – June 2011</td>
<td>36</td>
<td>31 (86%)</td>
<td>5</td>
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</table>

To further enhance the telemedicine system, the Ministry of Health launched the SAARC (South Asian Association for Regional Cooperation) Telemedicine Network. SAARC Telemedicine Network provides forum for the clinical specialist at the national referral hospital to share or consult cases with specialists in the SAARC region. It was officially launched in April 2009 with VSAT link to SGPIMS, Lucknow and PGIMER, Chandigarh. Facilities include digital radiology equipment, continuing medical education (CME) room set-up with videoconferencing and video streaming facilities, scheduled CME sessions from both the Super Specialty Hospitals in India.

SAARC also serves as a portal of updates and latest developments in different area of expertise through CMEs among the network. Afghanistan (2010) and Nepal (2011) joined the network. A total of 110 hours of CME sessions were
recorded from January 2010 to July 2011 with a total of 1584 participants and an average of 14 participants per CME session. The CME sessions were 23% pathology, 20% radiology, 18% surgery, and 9% Obstetrics and gynecology. Seven tele-consultations with specialists in India were recorded during the same period.

Hospital Information System (HIS) was also implemented in some of the hospitals with the aim of improving continuity of care, avoiding duplicate records and improving health information and evidence-based research. The HIS includes a comprehensive patient record from registration, doctor’s notes, drug prescription, laboratory results, PACS (Picture Archiving and Communication System), and other in-patient records. HIS customization phase has been completed and training of staff started in August 2011. Another initiative under accelerating Bhutan’s Socio-economic Development Program is the Health Help Center where one only have to dial 112 to get help for health concerns.

Our next steps are the development of Telemedicine Consultation System, development of ICT Masterplan, and design of eHealth Service Delivery platform in Health Services.

As utilization of eHealth increases, challenges also arise. Lack of national policy on eHealth is one of the major challenges; this includes the establishment of legal and ethical frameworks for eHealth. ICT Infrastructure is another challenge, collaboration with other ministries is needed to facilitate the development of information and communication technology. Although there is no national policy yet, implementation of Telemedicine and establishment of hospital information system is a good starting point.
eHealth Updates in Cambodia

Dr. Khol Khemrany
Chief, Health Information Bureau
Planning & Health Information Department
Ministry of Health

Good morning. In this presentation I will discuss the goals, Health Management Information System, Civil Registration and Vital Statistics, eHealth Solutions, and next steps in Cambodia.

The overall goal for HIS in Cambodia HIS Strategic Plan 2008-2015 is “availability of relevant, timely and high quality health and health-related information for evidence-based policy formulation, decision making, program implementation, and monitoring and evaluation so as to contribute toward the improved health status of the Cambodian people.”

So enhancing ICT is one of our priorities. We are doing work in Health Management Information System (HMIS). We have revised our data collection tools. The paper based revision happened in 2013 that included changes in patient register format, daily tally sheets, and monthly reports.

The HMIS web-based database started in 2010. It has multiple databases such as PMTCT, QA, M&E which fit our purposes. In 2011 we started with the Patient Medical Record System (PMRS) which we have implemented in 3 hospitals. We also have the maternal death surveillance and response, and planning and health coverage database. This database we collect data from health facility and coverage.

The CRVS web based database started in 11 communes in February 2013. It can register births, marriage and deaths. While this is going on the rest of the country is using the paper based system. Assessment was done in September 2013.

eHealth Solutions in Cambodia include web application (PHP/MySQL and others), fingerprint scan (piloted in small sample size), and mobile/SMS applied some programs (surveillance, Malaria). We want to explore bitmap image for Black/White mobile phone in local language and SMS System for patient follow up and appointment system.

Cambodia obtained excellent marks in a data quality assessment conducted by WHO in 2011 and 2012: completeness of reporting was at 99.8% of facilities submitted monthly reports for the year and there were no missing/zero values at the provincial and district level for four tracer indicators (Antenatal care second visit –ANC2–, measles immunization, institutional deliveries, and outpatient department –OPD–). Consistency with other indicators is good.
Our next steps are to develop eHealth Strategy – we want to specify and focus eHealth Strategy-, to upgrade HMIS web based database based on the updated forms, to roll out PMRS and adopt EMR, to strengthen MDSR, CRVS, record and report cause of death and diagnostic code, and ICD10 implementation-including cause of deaths.
eHealth Updates in India

U. Jai Ganesh, MBA
Member, Executive Committee,
Indian Association for Medical Informatics

So I would like to share the different major ehealth activities in India for the past 3 months.

The good thing that happened is that the government of India has released HER standards from the Ministry of Health and Family Welfare for electronic medical record (EMR). This has been the result of years of collaboration of the government agencies with the different private sectors in India. I can say that this is a major improvement in India.

In October 2013, it is expected to launch the National Health Portal. Among its many purpose, it will have the directory of the all health institutions offering health courses and health IT in India. There will also be a help desk for people who want to solicit information regarding the national health system and can also give inputs.

For the capacity building, IT training program will be conducted for health IT professionals by different organizations including the Indian Association for Medical Informatics (IAMI). We also conduct training of trainers; we identify champions in each institution, train them, and they will be the one to train their colleagues in that institution. We are also working on an MOU with an organization in giving IT training to health workers in India.

IAMI is considering becoming the sponsoring organization for IHE India and conducting connectathon.

For the coming conferences, APAMI conference and IMAIA General Assembly will be in New Delhi India next year.

Telemedicine services are also being offered in India both by the private and public organizations. Most are using cloud-based telemedicine since it is easier to maintain. The government of India has also released a drug formulary in an android application.
eHealth Updates in Indonesia

Guardian Y. Sanjaya
Gajah Madha University

There are 33 Provinces in Indonesia, each province has 3-29 Districts, and each district has 5-45 sub-districts. There are health offices at every levels. More than 9000 government-own primary care across Indonesia, all these primary care coordinated by district health office within a district (there are 454 District health office) and more than 1.600 hospitals (private and government own).

From 2012 to 2013 we do not have much activity on eHealth except for some of our major activities. Since year 2010 we have a project in strengthening our Health Information System through electronic data pooling. We implemented an information system for the primary health centers and hospitals were taken into action using District Health Information System-2. We have conducted Indonesian Health Informatics Forum that focuses on Community network on Health Information System, which also serves as a portal of sharing for the government, private entities and other stakeholders.
Open source primary health center and hospital information systems are being developed. Data integration from the primary level to the secondary level was also established through the development of standard data set. We also pilot tested telemedicine which focused on teleradiology. Currently, twenty-four rural hospitals are tapped as referring units.

For capacity building we are piloting center of excellence on HIS in Universitas Gadjah Mada. We are expanding infrastructure, SIKNA online- to hospitals and training non-IT with basic IT courses.

For UHC we are updating case-mix group (INA-CBGs) for payment mechanism (hospital services) and preparing for preparing universal health coverage by integrating civil registration database to BPJS (National Health Insurance Agency). ministries collaborate to use unique ID. We are piloting UHC information systems in 6 provinces in Indonesia.

For the year 2014 to 2016, the main agenda is to establish a health data dictionary; this is the most important thing to enable interoperability between different health information systems. Hopefully we can adopt the Snomed-CT and other standards. Private hospitals already started a different information system that is why the development of health data dictionary is very important to ensure interoperability. We also plan to implement open source application not just in primary health care but as well as the hospital information system.

We will also draft government regulation on HIS. We plan to expand the center of excellence to 8 universities from west to east Indonesia.

Universal health coverage deployment will happen in January 2014. This will mark membership expansion: formal and informal workers, review premium, review of providers payments (Capitation and INA-CBGs), strengthening National Casemix Center, and review monitoring, evaluation and audit mechanism for UHC.

We have strong leadership and networks amongst stakeholders but we need to work together with the different ministries to improve the implementation of information systems. For the legislation and policy, we do not have the specific regulation on ICT in healthcare and supporting agencies and the certifying body on the implantation of health information systems. On workforce, we need to prepare enough work force for the implementation and maintenance of the health information system. And lastly, we need to improve the infrastructure especially on the remote areas.
eHealth Updates in Lao People's Democratic Republic

Founkham Rattanavong
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The population of Lao PDR is 6.5 Million. Majority live in rural areas (70%) and poverty is at 20%. The average life expectancy is 65. GDP is $1500 (2012-13) while Gross Government Health Expenditure is at 1% of GDP and 4% of Gross Government Expenditure. Out of pocket payment is at 40% and health insurance coverage is at 20%. There are 5 community hospitals, 3 service centres, 3 regional hospitals, 13 provincial hospital, 130 district hospitals and 992 health centers all over the country.

eHealth activities in 2012-13 include ICD10 adoption in some central hospitals. There are four central hospitals that have applied hospital information management system. Health Insurance records are now computerized but not harmonized (HMIS: excel based). DHISv2 and Web based reporting are in the initial phase. There is a PM decree that directed the different sectors to work together. There are various computerized family folder programs are applied in some provinces.

The country’s HMIS Strategy (HSR) is continue to improve routine health reporting system, apply Information Communication Technologies in health information system (eHealth strategy), implement Civil Registration and Vital Statistics (CRVS) with other concerned sectors, strengthen information standards and interoperability between different information systems, and harmonize health related survey and surveillance for better population based and facility based information.

Obstacles and challenges remain. Health information is rarely used for improving quality of services. There is poor data quality and completeness and timely reporting are in question. IT capacity to meet the information demands is low. Our CRVS is at early stage and not initiated by the health sector. Our M&E system capacity is still low. There is lack of coordination amongst different health related data sources and HIS is not on the priority agenda of the sector.

In the coming years our strategy is to elaborate the HSR M&E framework and action plan for HIS with proper IT or eHealth implementation. We will improve the HIS and NSC for better data quality, including hospital and financial management (web-based reporting, CRVS). We will promote and advocate for the use of health information for planning, decision and policy making. M&E for HI and UHC implementation shall include coordination, cooperation, contribution, and commitment.
However, I would like to mention on priority activities that are classified into clear-cut programs and projects that have been funded or have completed their feasibility study and require budget. In total, in 6 Programs, there are 171 projects (87 are being implemented + 78 require funding + 6 are proposed and negotiated for funding). Information can be provided upon requested.

In conclusion the more the data we have and use the more data that can be corrected as there is no perfect data. Good HIS is the system that can be used for addressing health challenges at different levels and areas. eHealth can be very helpful and should be used as much as possible. Lastly, leadership, legislation, technical and financial capacity are keys to success.
I will be presenting the ICT group, ICT medical group on health systems. I will be given 15 minutes but I got a lot of slides. I only now have around 10 minutes so I’ll just go through. This is our country profile, Malaysia, and we have a population of 28 million and about 7.3 are non-citizens. And this is our health vision for health and eight health goals. Just a preview on our healthcare system, we have our public and private health sector and the public is about 60% of our services so as you see we have public hospital and also private hospital and also have university hospital and ministry of defense hospital. and most of the work is the ministry of health hospital.

This is our expectancy, for life expectancy at birth is still very low 4.4%. Next, we have a low GDP on health and this is one of our challenges. And this is the distribution of our government local clinics also and we have 8,000 private GPs and for health clinics, we have 3,000 clinics ranging big health clinics to small rural health clinics. And for hospital, we have the ministry of hospital around 41 and is distributed all over. But if you look into private hospitals and also private clinics, it may be in other areas then. So our rural areas is covered by the ministry of health. And this is our workload including our public sector and private sector.
So a lot of our work is more on public hospitals. But if you see the numbers of doctors, you could see it was half-half then.

So these are some of our challenges in our public and private so that’s why they are moving to health information system. There is the lack of integration and resource maximization. I think it is common around the world. The changing trends in socio-demography and disease pattern, overstretched public services and facilities, limited appraisal and reward system for performance, greater expectations from the people, and managing the growth and pattern of health spending contribute to the challenges that we face.

Non-communicable diseases and risk factors are increasing. There is now the trend for young population and the health expenditure is increasing. There is the problem with public health work that is becoming more and more. And for the health information, the challenge is really the integration. So, Malaysia now has health informatics framework combining political commitment, governance and policy and interoperability. Some of them are the Telemedicine Blueprint 1997 and HIMS Blueprint 2006. These provide the conceptual framework for future health system, and the other is the national approach for health information management. There is the push to reform. The overcongestion in public services clearly defines the need for teleconsultation. The use of ICT in various facilities affects the need for the national data warehouse, lifetime health record and economy. In ICT no money no talk. So we need this investment and the political commitment to make it work.
In the framework, this business framework was envisioned since 1996. The MSC or Multimedia Super Corridor has started then. There needs to be the policies to govern these systems. So the need for the blueprint and governance is there. For vision 2020 of Digital Malaysia, there are needs for government transformation program, economic transformation program to leverage initiatives and create opportunities for digital economy. There are 12 National Key Economic Areas (NKEAs) at the core as driver of economic activity and the two of them are for the healthcare and communications content and infrastructure. As there are many plays in HC, lifetime health record would be the key platform to interoperability. Malaysia Health information Exchange (MyHiX) pilot project is an interoperable platform for healthcare data. Here, the security is included and it can also facilitate referrals between facilities. To address interoperability, health informatics standards play a vital role. We have the national health data dictionary, malaysian drug codes, and also using other terminologies like ICD-10, SNOMED-CT. We formed HL7 Malaysia. Malaysia through MDEC is a member of IHE and attending connectathon. We also have mHealth Initiatives like MySMS, which use single number for all government agencies, mobile dengue, remote home monitoring, mobile teleconsultation, CSR by telcos and other mobile apps for health providers.
The idea is also to promote CCI connectivity nationwide for all health facility into the 1Gov*Net. So far only 235 have systems. Since 1996, the paperless has been the goal. We are hoping for the integration and by 2020, we would like to see the big picture. The integration of dental and primary care, we are planning for one system. The proposed transformation is in 3 areas: health service delivery, organization and financing. We need to take MOH to the next level, one that embraces the need for changes and focuses on the ways to get there. ICT is one of the key building block in national health reform strategies & to enable efficiency, quality, improved outcome and innovation in health care delivery.
eHealth Updates in Maldives

Aishath Samiya
Director, Ministry of Health, Maldives

So I will give a very quick update on the eHealth initiatives in Maldives. Just a brief background about Maldives, population is about half a million, we have 1,900 islands, each island is very unique, 194 inhabited islands. There are 20 administrative atolls (group of islands) plus the country capital - Male. Main economy is tourism. For health statistics, maternal mortality is quite low, last year it was 53.

One of the challenges in Maldives is that it has many islands. The geography is dispersed. ICT cost is also very high. There are a lot of systems in Maldives. Each atoll hospital has its own information collection system.

We have implemented a national ID card for the locals but it does not cover the tourists. We are also currently working on biometrics at the point of entry so we can solve issues in identification. There is limited capacity and resources including technical capacity for central level oversight. Also, there are inadequate regulations, policies and standards to support eHealth. There is a lot of hesitancy by health care professionals in adopting new technologies such as e-prescriptions, telemedicine, and other form of technology in health is a major challenge.

We have formulated the Maldives E-health Strategy for 2011 - 2016. Numbers of initiatives were listed in this strategy. One of these strategies is to draft health information policy. The goal is the availability of high quality health information for policymaking, planning and management & its meaningful utilization while maintaining privacy.
We are also conducting a system analysis study for the Maldives Integrated Health Information System (MIHIS). Currently there are many vertical information systems in clinics and hospitals like VRS, hospital info systems, communicable diseases, mother & Child health, non-communicable diseases, universal health insurance system, manual facility based records also, monthly reporting to central level etc. All of these systems call for information. The idea is that the information will be gathered from the ground then information will flow to the different systems in the hospitals and clinics. Study is currently ongoing and hopefully done by the end of this year.

We are also working on the health service bill, which has a big component on health information and research. We have already started conversation with service provider in the country on mhealth systems. Currently we have implemented telemedicine network in 39 health facilities. This can be used in remote consultation. But there is a lot to work on the utilization issues. For our future eHealth activities, we will support development of IT standards to support eHealth Strategy and Health Information Policy. Next year, we will endorse Health Information Policy. We will continue the MIHIS software development/modification and implementation. Strengthen mHealth initiatives to support clinical and public health use and strengthening and improving utilization of telemedicine in health care provision. Lastly, we are working on linking all public hospitals and Ministry of Health with video conferencing technology.
eHealth Updates in Myanmar

Aye Aye Sein
Director
Department of Health Planning
Ministry of Health

For 2012 to 2013 the road map activities on e-Health innovation have been formulated from the National Workshop on COIA held in February 2013. We are developing web-based EMR which is being implemented in select sites. We have started using ICD10. Development of Social Security Board Management System - Enterprise Application System (SSBMS- EAS) is being done and will have E-Smart Card for workers under Social Health Insurance Scheme, which covers 1% of the population. We have introduced and trained DHIS2 to the MOH core national team –DHIS2 training and customization to country standards is on-going. We have AeHIN Scholars for the HL7 Online Fundamentals Course. Yes, we are trying to learn HL7 now.

We have conducted capacity building activities. Our GIS covers 90% of facilities. We can compare this information system with other information.

It is the intention of our MOH to fully utilize ICT for health and our eHealth Activities 2014-2016 shall include establishment of a National e-Health Steering Committee – which should provides guidance, development of National e-Health Strategy, and development of policy related to health data privacy and security. We will adhere to e-Health Standards and interoperability to support e-Health services, applications and infrastructure as well as to facilitate health information flow. We will pilot DHIS2 in selected 20 townships and use web-based EMR. Capacity building for eHealth is part of our plan. We would like to increase the participation in eHealth Information Network

Because we are in the very early stage of eHealth implementation our needs are about the investments that a country must make such as capacity building, technical support, infrastructure development, cooperation and coordination of all stakeholders, and strong policy and regulatory framework. Our challenges are the lack of resources and priorities, shortage of manpower, limited ICT infrastructure, and technical barriers at national and regional/ global levels.
eHealth Updates in Nepal

Anil Thapa, MSc, MPH
Director
Ministry of Health and Population

Basically, I will present updates existing about eHealth, especially the progress in the office in my country. My presentation will focus on four areas. The first will show the conditions of the development in our country and ongoing eHealth activities in our country, for all the activities. That there’s the need to improve the eHealth in Nepal. So yes, this is the very brief condition in Nepal. The population of Nepal is 26.4 M. Nepal is the mountainous country. It is also the birthplace of the Lord Gautam Buddha. It contains the highest peak of the world, of the Himalayas, in the country. Migration into the capital is going on. And mode of delivery to entry is called.

Yes, these are activities in the past. Basically we have 30 telemedicine sites. All those sites are from very remote or mountainous area. And then we have the web-based Health Management Information Systems, Logistic Information System, Human Resource Information Systems, and Transaction Accounting and Budget Control System. All of them are web-based. We have 11 sub-information system and health facility mapping and institutionalization of GIS in HMIS.

Nearly all in my country have the statistics, more or less these all are called by the GIS in the HMIS. Then, we also have the “Safe SIM”, a mobile-phone based intervention for Community-Based Maternal and Newborn Health. It focuses on the activities of the woman and did one under the four pilot villages of Baglung. Then, we have the SMS-based disease surveillance reporting system. I hope 11 countries can share that can our match experience. Basically, SMS-based system functions for the notifiable diseases. For example, always may happen if audio got problem then they need to immediately put input otherwise, they forgot their report.

And another is that’s why in the morning session I shared with you some profile. By help also of the ministry, we are starting from GIS. We are going on that process. Yes of course, we have some gaps in the activity.

Basically, there are the mobile system, and of activities to improve health system. So under the COIA project in ehealth system. We plan to implement Country Accountability Roadmap Nepal (CARN). Basically in that activities, we have developed institutionalization of IT and eHealth unit. Our government under the ministry of health and population, there are standardization ways. We have different health management information systems, we have dhis2. But we don’t have strong standards in the policies. That’s why the ministry, the COIA, decided to establish one strong unit and that unit will get all information systems in the
country. All these systems will initialize for eHealth union. We will propose the activities gradually, we move forward to improving health IS. We are focusing in mHealth. We would like the two areas, get eHealth strategy and implement mHealth system.

Yes that’s where my countries where HMIS, we are moving the HMIS in DHIS2 environment. And we have been making decision with these numbers. We are expanding and improving the eHealth in the country. Actually, just one year back, took decision to log the information system. So the gov’t has look the system. Yes basically, there are similar challenges to other developing countries. We face challenges in the technical support form the department. We have to develop partners who help in eHealth systems network. For the infrastructure, it will be establishment of one of the IT. More focus was given on technology and less focus on people. We need improvement in strategic framework of course.

What we want to improve are basically the technical support from development partners. We need support from WHO, from these AeHIN. We are looking for eHealth and to know how eHealth is going on in our country. There is need to development human resources like having scholarship opportunities. So we have years for the information systems. We need financing for piloting and testing innovative ideas and solutions. And this ends my presentation. Thank you very much.
eHealth Updates in the Philippines

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Department of Health – Information Management System

eHealth activities in the Philippines are grouped into five major actions. We have Governance, Foundations, eHealth solution, Development Change & Adoption, and Monitoring & Evaluation.

Governance
For Governance, just recently, we (Department of Health) together with the Department of Science and Technology established a joint memorandum for the National Governance Steering Committee and Technical Working Group on eHealth. We also expanded our network, the Philippine Network for Injury Data Management System, a network of all those involved in injury reporting. We also started works on establishing the National Health Data committee; this is backed up by one Administrative order – the policy on implementation of Health Data Standards.

Foundations
On Standards and Interoperability, we already developed the first version of our Health Enterprise Architecture. We also developed our eHealth Framework and Development plan for 2013 to 2017 and currently being updated by the Technical Working Group formed by the Department of Health and Department of Science and Technology.

For Interoperability, our Secretary (DOH) already signed the National Implementation of Health Data Standards for e-Health Standardization and Interoperability. We already have the standards for the following: Client registry, provider registry, the national health facility registry, ICD10 (International Classification of Diseases, tenth revision), LOINC (Logical Observation Identifiers Names and Codes) and CPT (Current Procedural Terminology).

This is the first and by year 2014 we hope that there is more to come, we are beginning in a small-scale implementation and we hope that we already completed the standards before our nationwide implementation.

We also have the approved policy on the National Policy on the Unified Registry Systems for Chronic and Non-communicable diseases and are currently organizing the training and implementation for both government and private hospitals.

We have also started the Institutionalization of the National Telehealth Services under the Department of Health. There is also an administrative order and series
of public hearings regarding the implementation of Software Data Compliance for National Health Data Reporting.

For our Infrastructure, we renovated and upgraded the Central Office Data Center and connectivity speed. We also distributed computers to our government hospitals and rural health units for the implementation of Hospital Operations and Management Information System (HOMIS) and Clinic Information System (ClinicSys) as the EMR of the Department of Health.

eHealth Solutions

For the eHealth solutions, we have several Online Systems:
- Kalusugan Pangkalahatan Dashboard
- Maternal and Neonatal Death Reporting System
- Integrated Tuberculosis Information System
- Health Facility Enhancement Program Tracking
- National Online Stock Inventory Reporting System
- HIV/AIDS Registry
- Event Surveillance and Response Reporting
- Prototype System of the Health Information Exchange

For the mobile health applications, we have: two applications; (1) the mHealth WOMB or the registration of pregnant women and monitoring of child status and (2) Maternal and Neonatal Death Reporting System that serves as an alert system for the DOH regarding the Maternal and Child Mortalities.

We also vested in the development of PhilHealth eClaims Systems where hospitals will eventually send their claims via electronic submission. The Department of Science and Technology (DOST) is also currently doing a pilot implementation on RxBox, a biomedical device with sensors that measure physiologic signals such as blood pressure, dissolved oxygen, uterine contraction, and fetal heart rate. The device will interface with the current EMR system.

And also we began harmonization and interoperability of systems. Since we are already implementing the Health Data Standards, we have harmonized our EMR (ClinicSys) with Field Health Services Programs, Tuberculosis System and Maternal & Neonatal Death Reporting System. We have also harmonized our Hospital Operations and Management Information System (HOMIS) with the PhilHealth eClaims System and also with the Unified Registry Disease Systems for Non-communicable diseases. The system covers diseases like Cancer, COPD, Stroke, Diabetes, Mental Health, Blindness, and Coronary Artery Diseases.

Change and Adoption

We have conducted collaboration and engagement activities. One of which is the continuing of Health Information System to sub national levels. We also conducted several Health Information System Forum, this is to consult facilities about the essentials of health data standards for interoperability.
Just recently, we consulted twenty-eight (28) private hospitals for the initial works in Identification of Minimum Data Standards for Health Information Exchange.

We are enhancing our Telemedicine Services in Geographically Isolated and Disadvantaged Areas (GIDA) in 389 sites and targeting more sites by year 2014. We also implemented HOMIS in DOH-retained hospitals and trained 1,000 rural health units for ClinicSys.

And for PhilHealth, we have piloted the implementation of PhilHealth eClaims Systems as well as point-of-care enrollment for the enrollment of indigents being admitted to hospitals that are not yet covered by health insurance.

For Monitoring and Evaluation, we continue to support our current systems and implemented projects.

Future eHealth Activities:

Governance
Since we have already the order on Software Data Compliance by year 2014, we are going to establish the certifying body to support the national health data reporting and health information exchange. We also plan to strengthen the Philippine Health Information Network by expanding the membership and creation of sub-groups like Health Information Exchange, and National Telehealth Steering Committee.

Foundations
We will continue to update our standards probably to cover the electronic health record interoperability and policies on Data Privacy, Data Access and Sharing as well as the Health Enterprise Architecture & e-Health Plan.

eHealth Solutions
For eHealth solutions, the Department of Budget and Management have harmonized eHealth projects and we are planning to implement/harmonized the following:

- Philippine Health Enterprise Data Warehouse
- Philippine Health Information Exchange
- Hospital Operations and Management Information System Expansion
- Integrated Health Good Licensing Information System
- National Disease Registry Enhancement
- Updating of the Health Portal
- Health Service Delivery Systems and/or Tools
- PhilHealth eClaims Systems

Change and Adoption
We will continue what we started with the standardization not only in public but also in private sector. This includes the implementation of Health Information Exchange through the completion of electronic medical records. We are going
to adopt the Data standards and Software Data Compliance and form the certifying body for the implementation.

We also plan to expand telemedicine to 450 additional sites. We also plan to expand the implementation of PhilHealth eClaims System that includes the accreditation of Health Information Technology Providers, roll-out of the point of care benefit enrollment system and primary care benefit system for outpatients.

**Monitoring and Evaluation**
We will focus on the adoption of health standards for interoperability, software data compliance and also the desired outputs as written in our eHealth Plan.

**Need and Challenges**
For the needs and challenges, these are connectivity, robust and secured infrastructure to enable interoperability between PhilHealth and health facilities for provision of services, analysis of large volumes of claims data for formulation of health insurance policy and improvement of claims processing, continuous funds for upgrading and/or sustaining the required resources like ICT infrastructure, technical support personnel, and others, and implementation /Operational Support to roll-out DOH standard systems to support Health Information Exchange.

For the major challenges, we have protection of patient’s privacy and confidentiality. The implementing rules and regulations of the Data Privacy Act are still not done. We have to be able to use security measure such as digital certificate, Public Key Infrastructure, and others. E-Health acceptance is also a challenge in terms of usability of Systems: Benefits to Users and Utilization of Data, adoption of e-Health Standards and Software Data Compliance, and capability building of Health Workforce. The availability of computing devices is also a challenge for us. Lastly, the operationalization of government enterprise Architecture Model, Enterprise Service Bus, and Interoperability Framework is a challenge for us.
eHealth Updates in Thailand

Boonchai Kijsanayotin MD., Ph.D.
Nawanan Theera-Ampornpunt MD., Ph.D.

I will give the highlights of ehealth updates of Thailand.

Thailand eHealth Activities (2012-2013) are interoperability and health data standards development, assessing Civil Registration and Vital Statistics (CRVS) System, and national and international Biomedical and Health informatics capacity building.

For interoperability and health data standards development we are focusing on medicine terminologies in Thailand that could serve reimbursement and clinics. The main driver is money. Thai Medicines Terminology (TMT) Development supports interoperability of EHR systems and the national health care reimbursement systems. It employs SNOMED-CT data model, HL7 and HL7 Clinical Document Architecture Standards. There is an informal network to explore and potentially develop standards based on HL7 CDA for use cases within Thailand's healthcare systems. We don’t have syntactic body of knowledge and standards. We formed an informal group to develop and work on HL7.

The assessment of Civil Registration and Vital Statistics (CRVS) System is a multi-stakeholders involvement, supported by UNESCAP. The results show Thai CRVS is in “Satisfactory” categories (score 86/100). However, the quality of cause-of-
death data is not up to standards. We need rigorous strategic plan and actions to improve the cause-of-death data. The report is coming not later than December 2013.

As for biomedical and health informatics capacity building There are many training courses in health IT. I have included here some that we have been involved with. We recruit people working in health and health IT. We have a postgraduate degree (Diploma & MSc.) training program at Faculty of Tropical Medicine, Mahidol University which is supported by the Rockefeller Foundation. The program commenced training in January 2013. There have been 19 international students: 4 from Laos PDR, 2 from Myanmar, 2 from Cambodia, 1 from China, 1 from Vietnam, 1 from Philippines, 1 from Bangladesh and 6 from Thailand. We have an informatics tract at Pharmacy schools’ postgraduate program in 2 Universities, Healthcare CIO Certificate Program at the Faculty of Medicine Ramathibodi Hospital, Mahidol University. Health Information Systems Fellowship and Training at the Thai Health Information Standards Development Center (THIS). We hope that these people will help in health informatics.

We got a call from Sri Lanka asking about where to take course in HIS and they sent people to share with them what we have achieved in Thailand.
Our future eHealth activities (2014-2016) include National Health Information Clearing House which will take on the task of harmonizing 3 insurance claim information systems into one; minimize the workload and help create national health information warehouse. We will have National HIS/eHealth roadmap and EA. We will expand systematic eHealth capacity mechanism and continue working on standards and interoperability: HL7, LOINC, SNOMED-CT, PKI.

We need to align eHealth works between Ministry of Health & Ministry of ICT and create common vision and leadership of national eHealth development among stakeholders. Lastly we need more people working on eHealth.
eHealth Updates in Vietnam

Assoc. Prof. Dr. Nguyen Hoang Phuong
Administration of IT,
Ministry of Health, Vietnam

Good morning ladies and gentlemen. The content of my presentation is I’ll give introduction on what we do and what we want to do and our priority, updates, and discussions.

Our needs are government commitment, financial support, infrastructure, standards in IT in health, national medical database, IT in health working group leadership, education of IT in health, and international cooperation.

Among these 7 successful factors, our government is very committed to develop IT in the future. We need to have a national IT committee that will push the use of IT. The second factor, the financial support is one of the big problems.

We still lack country e-Health strategy, enterprise architecture, Standards in IT in Health, National Medical database, IT working group leadership.

We want to develop these for a smarter health in the country.

On the e-health activities, we have an EMRs and Hospital information system project focusing on developing exchange data protocol based on HL7 standards. The project is set to be finished in 2014.

The project includes HIE to exchange EMRs and data between 6 hospitals namely: National Traditional medicine hospital, National Pediatric hospital, ThanhHoa National Pediatric hospital, National Obstetric hospital, National General hospital in Hue, General hospital in HaTinh.

Second is the national satellite hospital project, a telemedicine project from 2013-2020. The telemedicine service will have Video conferencing for consultation, training and operation between 15 Central hospitals and 45 Satellite hospitals in fields of Internal medicine, Surgery, Pediatrics, Obstetrics, and cancer.

Another initiative is developing model of family doctors, which aims to develop HER databases for patients. It will include 80 clinics in 8 provinces. Developing islands health projects which is a telemedicine services for islands in the areas.

For capability building, e-learning for medical education and training in improving health Human Resources project will also be one of our priorities.
To sum it all up, our priorities in the health IT areas are: developing eHealth strategy, IT in health standards, legal framework on health activities in networking, data center, e-administration, public services, HIS and medical insurance payment, HIS, applying IT in basic health, health information technology human resources and IT infrastructure of MOH.
Partner Updates and eHealth Opportunities
The New WHA eHealth Resolutions and the Commission on Information and Accountability

Mark Landry
Team Leader, Information Evidence Research (WHO-WPRO)

What I want to do with my initial time today is to share a little bit about the point of entry for WHO particularly around some updates around the couple of the commissions that are Global Health Initiatives - Commission on Information and Accountability and Commission on life-saving commodities. And also, reflect on some of the implication of the key components of the recent May 2013 World Health Assembly eHealth resolution and how this impacts the Asia eHealth Information Network. So I will share some about global - regional perspective, talk about the WHO resolution and talk about this in the context of a turning point and then again what are some of the impacts of WHO in the network.

For starters here, there are some very interesting initiatives that we can build on and work on to support member state. One of which is the Commission on Information and Accountability and the Southern Commission on life-saving commodities. First, we call COIA. And this is one of the 10 recommendations of this commission to improve performance on MDGs 4 and 5 and particularly on recommendation number 3 on eHealth. Some of you who are part of COIA initiatives, one of the 75 priority countries know this quite well, for others, I think this is influential to the nature of our priorities for the next few years.

A few things about this are supporting countries in developing eHealth strategies and utilizing tools such as this tool kit. We see in the AeHIN implementation plan that 20 countries have well specified national eHealth strategy by 2015. Just a couple of months ago, the ITU produced a very interesting report on ICT in improving information and accountability, and I encourage you to look at that. It is another way to benchmark and see what are the ICT challenges that impact health and particularly around this work of this commission.

There is a resource called global observatory for eHealth. Earlier this year, the COIA countries participated in that most recent version of that survey country profiles and other summary information, which will be available in the next several weeks. But I think it is a great way to conduct comparative analysis, and understand situation that impact our work on eHealth.

And finally, this is an interesting work that WHO is associated by through the partnership on RMNCH. And an interesting output that is not available yet is an ICT readiness workbook, which will be published in the next 30 days. Again, there are lots of tools in the box that are supporting information and accountability.

Now back to Southern Commission on Lifesaving commodities for women and children’s health. Interestingly, there not so much global momentum yet, but it is coming and there will be 17 priority countries – a few will be in this region. Within
the work of that commission, are 16 priority areas around supply and awareness, increasing demand and utilization. Another entry point for eHealth is about supply chain logistics for example. A few other regional initiatives that this network is interested in tapping into also in collaboration with ITU, is the initiative in the use of mHealth for non-communicable diseases. You can see number of potential mHealth packages of mHealth applications looking at wellness and diabetes screening and surveillance, cessation for smoke free population. Those are just few of the example. These are the resources that we can share and make it available.

There is also a work involving universal coverage. Collaboration that most of you are aware to – with ESCAP, ITU, UNICEF, UNFPA looking at civil registration and vital statistics particularly around the use of ICT around birth registration, death registration, even using verbal autopsy to do better cause of death determination and underlying cause of death. These are initiatives that ICT and eHealth play role.

So stepping back again, another ball is this May 2013 World Health Assembly resolution on eHealth. I’m only picking up few of the points, these five particular points are quite relevant in the discussions we had. Around supporting the systematic and sustain use of eHealth using the standard-based approach. This describes of course understanding and implement health data standards, we found that many member states are very interested in Monitoring and Evaluation, what works, and start how to capture that in a database as well as working with the WHO collaborating center and looking at how to have effective collaboration with standard development organizations.

So how do we proceed from here? My understanding by the end of the year WHO will release a handbook on eHealth standardization and interoperability. This is a critical guide for countries to take advantage of. I do want to present this in a very simple way, is how to think about the architecture or system architecture – in a very easy to understand way and taking user stories approach, understanding our business processes, profiling interoperability challenges before we identify health data standards – all driving towards nation standards and interoperability framework. You can see this content coming out of this handbook.

I would also like to mention that in January, there would be an inter-ministerial meeting to really escalate standardization and interoperability issues across all sectors.

So what is the turning point, you are actually more familiar with those items in white and some forward-looking activities in yellow. We have a lot of equity invested in normative approach in national eHealth standard, national eHealth strategy. We are also working on legal framework, policy support. But I want to mention some things about the enterprise architecture approach and developing national data standard. Some of you who have seen me presented this too many times. But I think this is a very important, somewhat technical, very
important slide to convey that adequate planning give us the expected result that we would anticipate using an architectural approach. As WHO, we are trying to promote good practice but really work side-by-side and support government in having the most visibility and control and have much influence as they can on the front end. Particularly, in analysis, planning, and telling those user stories or a more formal use case approach, and documenting requirements as well. And then we have a blueprint.

So going back again, what is this national standards and interoperability framework? One point I want to make there, one of the recommendations on this handbook is: there may be gain in the efficiency and certainly through experience, considering adoption of a particular standard stacks, if not, working towards more interoperability or business process approach and utilization of interoperability framework such as IHE integrating the health enterprise, HL7 version 3, ISO 13606, coupled with work of OpenEHR. We have come to an agreement that there are some sound examples that by adoption of these standard stacks, really can be an effective way to get implementation quickly.

Some of other areas emerging are on Health Information Exchange and M&E. Two weeks ago in Mongolia for example, this is particularly in the radar. We saw Malaysia has a good experience in developing health information exchange.

And then finally, what are the public health impacts that WHO sees that good fit within the AeHIN implementation plan? How do we operationalize our normative role, convening power, technical support and how these fit within here. We have a mandate to support member state to provide technical support, helping provide guidance on implementation thereof, leadership, M&E. We see an opportunity with the Asia eHealth Information Network to work with WHO and many other technical partners to help support some of these initiatives in a rational manner. We also have an opportunity to work with AeHIN on shared principles with may of the development partners, particularly around country leadership – all eHealth process should be country led, our role is to support. Openness, open standards, M&E again.

We also recognize that in a way, AeHIN is just an informal network, there are other networks or other collaborative community that also has space and a role and an opportunity to work with WHO and AeHIN.

Also the processes have evolved, we are constantly looking into agreements bringing the use of standards for example, low cost or free. Really implementable, most of the standards we know what they are but we had a hard time implementing them. And I see this is another opportunity for the WHO and other development partners to have some concrete activities and I hope that some will be revealed in some of the synthesis earlier today.
And finally just in closing, we are really a community - recognizing our different roles and mandates, our competencies, our capacities. I think the WHO has found confidence in seeing our normative role within the network and continue to work and collaboration with other partner as well.

As many of the country participants are looking for priorities and areas, I think there is a commitment and principle by the development partners to find what resonates, what fits, what are the areas where we can all provide effective support without duplicating financial and technical coming from the development partners.
I’m going to talk about a little bit of the role of the national strategy and the toolkit itself. The national strategy serves as an umbrella for planning and coordinating different national eHealth efforts with different fundamental elements that need to be considered such as, regulatory, governance, standards, human capacity, financing and policy contexts.

The importance of national strategy is they give a different emphasis and leverage for governance through justifying national problems.

National context for eHealth development
On the vertical aspect is the established ICT environment where at the lower end is the emerging ICT environment. Infrastructure is important because governance, policy, standards and human resources expectations are increasing based on what the ICT environment can offer. And for the horizontal aspect, we are talking about the enabling environment for eHealth and that’s the governance, policy, standards, and human resources.
What we see on the lower left quadrant is a lot of experimentation and early adoption on how to establish infrastructure. As we move up, ICT environment is improved with a lot of the enabling environment are set. But still the governance, policy and standards are not met. And as we move along, the enabling environments are more established, scaling up and integration, policies for privacy, security and innovation are developed.

Overview of the Toolkit
The toolkit has three parts, the National eHealth vision, the eHealth action plan and third, the eHealth monitoring and evaluation.

The national eHealth vision has components; these are the Strategy and Investment, Services and applications, Standards and Interoperability, Infrastructure, Legislation, policy and compliance and Workforce. All of these components need to be considered in the national strategy even if they are not a priority of the country.

The framework for the national eHealth action plan
An initial action plan that is drafted based on the vision and recommendations developed in Part 1 (eHealth vision). The draft is refined based on constraints such as resources and funding and the eHealth environment, this approach ensures that the plan is grounded in the current context, but is not overly constrained.

The eHealth vision would talk about the foundation of eHealth while the action plan is what will help you what needs to be done and how should it be done.

And then finally, after the implementation, the monitoring and evaluation framework comes to reality. Monitoring and evaluation demonstrates progress and the results that eHealth is delivering. It communicates the progress and results, shows the impact of investment and it also build trust and support.

Each country will approach the process in their own way. The toolkit can be used comprehensively, but can be also tailored to the context. Changes in the strategic context should trigger a review of the action plan, in order to be relevant and realistic.
Innovations Working Group Asia: Harnessing the Power of Innovations to Save Lives

Terry Leong  
Innovation Working Group Asia

The Challenge is articulated in what the UN Secretary General Ban Ki Moon said:

“Each year, millions of women and children die from preventable causes. These are not mere statistics. They are people with names and faces. Their suffering is unacceptable in the 21st century. We must, therefore, do more for the newborn who succumbs to infection for want of a simple injection, and for the young boy who will never reach his full potential because of malnutrition. We must do more for the teenage girl facing an unwanted pregnancy; for the married woman who has found she is infected with the HIV virus; and for the mother who faces complications in childbirth"

We now have a roadmap on how to enhance financing, strengthen policy and improve service on the ground for the most vulnerable women and children. One of the 5 key action items called for by the Secretary General is to identify innovative approaches to financing, product development and efficient delivery of health services. The United Nations Commission on Life Saving Commodities makes a case for Innovative Financing and Product Innovation amongst its top 10 recommendation in support of the Global Strategy.

The situation is urgent: “Without innovation, hundreds of thousands of women and girls will continue to die in pregnancy and childbirth each year, and between 10 and 15 million more will suffer long-lasting disabilities.” We need coordinated research and innovation, innovative leadership, innovation applied across all activities and domain: technology, financing, tools and interventions, service delivery, monitoring and evaluation, and innovative partnerships in order to rise up to the challenge.

The Innovations Working Group was formed in 2010 in response to the Secretary-General’s call for urgent action. The IWG is led by Co Chairs representing the Government of Norway and Johnson & Johnson. It espouses catalytic partnership which includes nearly 183 individual members representing 79 institutions, including 20 NGOs/non-profits, 22 private sector, 12 UN organization, 7 academic institutions, and 14 ministries and government organizations. Working groups representing the partnership have been pursuing themes within technology, commodities and service delivery to catalyze innovations in their respective fields. In May 2013 a regional hub was launched in Asia.

Why Asia? Because Asia has the largest numbers of women and children, it is home to the world’s most vulnerable and highly dynamic with growing technology sector, substantial financial resources of fast developing Asian economies and rising interest of the private sector in Corporate Social
Responsibility (CSR). In short, Asia is where the potential for innovation to make huge impact.

The workstream of the Global Innovation Working Group is led by 2 Co Chairs: Mark Kelly, Senior Operations Director, South Asia, World Vision International and Rajendra Gupta, President, Disease Management Association of India and a Network of Partner Members.

The objectives of IWG are:
- Identify areas of innovation in the region, define priorities and set up working groups to deliver on agreed outcomes
- Promote the development and implementation of new models for scaling up existing innovation pipelines.
- Stimulate ongoing and vibrant regional consultation between multi-sector stakeholders and partners

Rebecca Affolder, Adviser on Global Health Policy and Coordination, UN Secretary-General’s Strategic Planning Unit, said that “every woman every child movement has grown into a pioneering example of a new way of tackling global challenges – through strategic partnerships. And this particular strategic partnership is already proving that we can achieve an outcome, greater than what any single actor could accomplish working alone.”

So the current thematic focus includes: innovations in community systems strengthening towards enhancing demand creation for regional maternal newborn child health (RMNCH) interventions and Life Saving Commodities, a toolkit for implementation of Telemedicine & mHealth interventions in across communities in Asia in relation to RMNCH, innovation relating to Nutrition for Adolescent Girls, and South to South Collaboration.

The values to our partners of IWG I believe is about sharing: Shared Experience, Shared Expertise, Shared Resources, and Shared Responsibility. So our work now is focused on what can we do together. And we find that what we can do together includes bringing health innovators, operators, sponsors and end-users to the table; guiding stakeholders through a logical process of exploring key questions, encouraging stakeholders to use tools, resources and assets that already exist (e.g. WHO, GSMA, mHealth Alliance, IWG), and focusing on what can be done.

Thank you.
eHealth at ADB

Susann Roth  
Senior Social Development Specialist  
Asian Development Bank

Key Messages:  
The Asia Development Bank (ADB) recognizes the public issues on unequal growth, unequal access to opportunities and services. As infrastructure bank, they are leveraging financing, and funding for development projects in several countries. Since 2003, ADB developed a strategy for e-development and already implemented over 400 initiatives in Information and Communication Technology (ICT) and at least around 14 billion dollars. Despite having only 4% invested for health and social sector, they are seeking to expand this to 10% and even more. For instance, they are providing contribution to eHealth programs in survey and control for communicable diseases, and extending to other eHealth innovations. ADB requests for feasibility study to effectively mobilize the resources. It is noted that they encounter those that “ask for an elephant if they want to have a goat”. ADB review the study and provide recommendation, needed funding, and look for co-financing to scale up the project. They value knowledge sharing and also collaborate with several institutions like the National University of Singapore, the School of Public Health, the International Telecommunication Union, the University of Tokyo, the Harvard School of Medicine, the World Health Organization, some research institute, ICT ministries, among others. They are also trying to get funding from private sector, foundations and of course the common development partners. In essence, ADB is looking at these opportunities, trying to network and build partnerships, and then offering practical solutions for the development projects.

We need more than these four. The growth in the region...that we know that one of the main issues in the region is really unequal growth and unequal access to opportunities, services, etc. But talking about this, I want to bring you back to one of our ADB’s other areas, really also knowledge management. And we’ve just publish this working paper online. I think one hour on health and health development agenda in Asia and the Pacific.

And we’re bringing out some key points for Asia. And these are really linked to what we are talking about. It’s about strengthening health systems, health financing, and then seen investing in the universal health coverage ICT for health, and going beyond these vertical programs that we talk in the millennium development goals. We’ve been also involved in publishing the Asia Pacific aspirations report for post in 2015 and I’m the focal point for this agenda looking at Asia Pacific perspectives for post in 2015 and what you need to post in this. I’d like to bring your attention to these two reports. And I’d now start with interested in these two reports and now start with what ADB has been done in ICT. As I suppose, most of you don’t know that and I’d like to present what are
opportunities are there to collaborate and mainly collaborate of course the area of leveraging financing. This is our role as a bank.

So ADB has developed in 2003 a strategy, which is called to board development Asia and Pacific living in an operational framework to engage in Information and Communication Technology and what this basically is. Especially how can we create enabling environment for ICT, how can we build capacity development and major point. How can we mainstream ICT in ADB projects. And I’ll go directly to this one. This is the website where you can find more information on ADB’s work in ICT. Now, I’ll bring your attention to the key statistics. What you see there is that ADB has actually implemented over 400 initiatives in ICT and then spent around 14 billion dollars in this area.

But as health professional, I’m a little bit sad looking at this statistics where there are only 4% were actually in health and social sector. The positive news that ADB, known for infrastructure is now actually looking at increasing investments in health. And one of the niche areas for ADB as infrastructure bank is of course health in ICT and eHealth. That’s why I’m here. And I hope to link up with you and build a very solid network to expand this 4% to maybe 10 percent or even more. And what tools do we have and what initiatives do we have. Only problem is that you might have an idea and you need some feasibility study and some study to think about how can we build our large investment.

And what ADB has it really has the capacity to mobilize funding. One of the initial funding mechanisms we have is the eAsia trust fund finance by the government of Korea and that which got to the state of 40 million dollars, which we are basically now more committed in around 5 million has left. This fund right now is under review and then the next four months, we will have a recommendation on the money on how to spend them and I’m there to make sure that health has one of the key areas for the future in this fund.

So what we also do is knowledge sharing. That’s one of the objectives of the eAsia funding and also that’s why I hope to support an AEHIN in the future to really help you facilitate exchange knowledge, knowledge exchange, etc.

We have connections with the National University of Singapore and the School of Public Health, with Research Institute I talked about this morning. And really of course is where your national strategy will need multi-sectoral approaches is that they talk to each other and well. We have an urban health project in Bangladesh that can we link to one of your ICT initiatives and maybe provide cool financing for existing strategy. Or you might have a project -- a road project somewhere or water sanitation project. And we look at household service and maybe can provide ICT, which is also then use for eHealth services. And so this is another area for ADB to collaborate as we need to move beyond single sector project and link initiatives and existing programs. So you might be interested in what we have done in the health sector and this is just to give you overview of some health and social protection project where we apply eHealth. I think Vietnam might have the most interesting examples and you can look at
the website here later where you can find details on these projects. Or you can
approach me and I’ll link you with project of the team leaders. Personally, I was
involved in the TB surveillance program and I’m involved in applying eHealth in
survey and control for communicable diseases. And Mongolia has an
interesting in a nutritional supporting project and the Philippines has an
interesting scheme to PPP in telemedicine.

So the partnerships that we have right now are with the International
Telecommunication Union and other of course the ICT Ministries. We have the
School of Public Health and National University of Singapore. And if you look at
the future, what we’re planning for future, it’s really actually happening right
now. In Bangkok, there is a working group committing ADB and ITU and NIH to
launch an ICT to develop for Asia and Pacific initiatives. And this platform or this
initiative is basically looking at creating the platform and network and having
three SAP initiatives on LAN connectivity and universal services, one is on e-
governance and the third one there will be. Basically, this is looking at the
networking with distinct networking but also leveraging, funding and financing
and then developing projects. And ADB is looking at providing funding for pre-
feasibility studies for these projects and then finding co-financing to scale up
these projects. So again, it’s about scaling up. And this would be also the
opportunity for you to always think of ADB if you want to scale up. Scaling up
these things’ initiatives or if you need for a financing partner.

And now I want to give you a little insight into our innovations’ part. We are also
looking at innovation and piloting. I won’t talk to you through the details of this
complicated slide. But I’ll invite you to look at this Prezi, which also puts a video
of application of one of our mHealth methodologies. We’re trying to apply a
study, which was done in Kenya last year and published and science on
improving Malaria and Dengue surveillance in country in mobile in populations in
Cambodia and Thailand. And you might know that one of the key issues of
Malaria and Dengue. And so a drop of malaria is the mobility of people in the
region. So we’re looking at mobility pattern and linking this with disease and
prevalence. We are working with the University of Tokyo, and Harvard’s School of
Medicine and WHO and of course other partners on small areas of innovation
which we are supporting. And this is link to a larger initiative on malaria and
public health. And if you are interested in this, this is the link to a prezi to here
give you overview of ADB work in regional health security.

So the key message is that ADB has an ambitious plan. But I work within Central
Asia and “they always ask for an elephant if want to have a goat”’. And the use
potential for collaboration especially for co-financing and leveraging funding,
establishing right now a regional regional financing partnership facility for health
with different trust funds. One on malaria and public health threats and one will
be hopefully on health system, health financing ICT support. We’re trying to get
funding from private sector, foundations and of course the common
development partners. But as we know resources, they are as scarce especially
now with Australia’s new government. So looking at opportunities and we’re
trying to network and build partnership and offer practical solutions. Thank you.
Intervention in moving forwards UHC

Young Ran Kim
Senior Deputy Resident Representative, Korea International Cooperation Agency

Good morning ladies and gentlemen, I am the last presenter this morning so I'll make this very quick. On behalf of the Korea International Cooperation Agency (KOICA), grant aid wing of the Korean Government, I'm honored to present to you with our partners and our stakeholders the KOICA Intervention in moving forward Universal Health Care.

This is the presentation order. First is History of National Health Insurance of the republic of Korea and SWOT analysis, which will be followed by KOICA’s intervention in moving forwards UHC.

Among the public health programs implemented by the Korean Government, “National Health Insurance for the entire population is worthy of notice. And it is getting mounting calls from the international community to share our experience in this field.

Before we move on, I like to briefly speak about Korea Health Insurance: Korea has reached universal health care within just 12 years. In 1977, the Korean government introduced medical insurance program from large work places with 500 employees or more. At that time, the population coverage is below 15% but after 12 years, the entire Korean population is covered from the risk of medical illness.

Let’s look at the figures of the major development of Health Insurance coverage in accordance with the Korean economic growth of per capita GNP. In the beginning, Korea’s per capita GNP is 1,012 US dollars. After 12 years, the country’s GNP increased 5 times. At the same time, almost 100% of the entire population is covered by health insurance.

Another significant development in the history of Korea’s NHII is the establishment of the Health Insurance Review & Assessment Service or HIRA.

Korea has two organizations in charge of health insurance under the Ministry of Health and welfare that are dependent from one another, Which are NHIS and HIRA. The NHIS is the organization in charge of membership, and is the single payer to healthcare organizations while HIRA is the review and assessment body. HIRA checks the claims of the members, and performs supportive tasks to national health insurance policies such as whether physicians’ fees and prices of medicine are appropriate. This independent review system for utilization of medical services is unique, and has greatly contributed to maintain Korea’s national health insurance system balanced.
Based on Korea’s Development Experiences, I would like to share the SWOT analysis of Korea’s intervention.

For the strength part: Korea has successfully established laws, institutions and data management system that made its national health insurance efficient and effective. This successful movement towards UHC is caused by the rapid economic growth and strong drive of Korean politicians. Korea has well-developed data management system as well as widely recognized specialists. WHO-WPRO Regional Director, Dr. Shin Young Soo was head of HIRA before he joined WHO. And Korea ranked 11th level in the Networked readiness Index 2013 from World Economic Forum.

Weakness: Even though Korea possesses sufficient organization and people that are specialized in health insurance, they are lack of experiences working at partner countries (Lack of ODA experience). Since as an emerging donor, the Korea’s Aid program has recently started. Keeping fiscal balance is another challenge. Korea’s National Health Insurance expenditure is skyrocketing, showing a ten-fold increase over 10 years. The proportion of the population above 65 years is projected to reach doubled (from 2000 to 2022). It will take Korea only 22 years to double its share of elderly population, what took 41 years in UK and 115 years in France.

Opportunity: Have you ever heard which country is role model of Obama’s Health Care reform in the Unites States? Despite this several weakness, Korea is still considered as a prime example of a country that is implementing a successful health insurance system. Over years, several countries have cited their interest to replicate Korea’s system to their own country.

However for the threat side, political, economic and socio-cultural environment of partner countries must also be taken into account in order to successfully replicate a system. Korea’s insurance system must therefore be adopted to suit the local condition in partner countries.

In line with this analysis and the comparative advantages of Korea’s experience, KOICA establish the health strategy for 2011 to 2015. Goal is to contribute towards strengthening the capacity of partner countries to provide essential health services and a safety net for the most destitute.

From 2000 to 2010, KOICA continued to increase its support in the field of health. Health-related support represents 20 percent of KOICA’s total budget, which in 2010 stood at about $80 million.

KOICA’s Health Strategy is focused on the strengthening of health systems to ensure sustainability. Strengthening institutional and financial capacity of health systems consists of major three parts: Health Insurance system, capacity building and information system.
It is possible to obtain sustainability only when it is legally, institutionally, and functionally established and when it operates on its own capacity.

This slide shows the Private Expenditure on Health of Korea and its partner countries as a Percentage of Total expenditure on Health based on WHO data. As you can see from this slide, Korea spends much less on private expenditure or out of pocket payment compared to partner countries.

With the 4 countries which I cited before, KOICA is currently assisting UHC Program to enhance their institutional and financial capacity.

In Nepal, KOICA will assist the Government to develop the best health insurance model by establishing community health insurance model in 6 pilot area.

Meanwhile in Cambodia, KOICA is supporting the capacity-building of the country’s health workers for Health Insurance area.

In the Philippines, KOICA will support the establishment of an integrated Electronic Health Record (iEHR) that will serve as the regional model. Its target region is Region 4A (CALABARZON) with around 14 million population, one of the biggest region in vicinity of Metro Manila.

This is the end of my presentation. The Republic of Korea went through the shortest journey of UHC for the previous years. And KOICA is willing to assist our partner countries and work together with our development partners for the support of UHC sharing our lessons learned. Thank you.
SWOT for Korea Interventions

Kelvin Hui
Technical Advisor, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

First of all before I speak about IT for UHC, obviously we need to understand what UHC is all about. Taking the particular definition from the World Health Organization, Universal Health Care is “Ensuring that all people can use the promotive, preventive, curative, rehabilitative and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship”

In most of the country, especially in the Pacific region, UHC is on top of many country’s health system reform agenda and correct me if I’m wrong, UHC will likely be the post-MDG development agenda for health.

Before we go to IT for UHC, it is important for us to understand the financing mechanisms of the health systems. Health is like any other services, you get sick, you seek for treatment and then pay for the services. That is the most basic way of looking at healthcare.

One of the problems with this particular, simple market-economy model is, it’s inhumane – people who cannot afford cannot do it results to inequity. Another problem is the access, if you are living in a village that only have 300 people, chances of hiring a doctor there will be very limited because if you are a doctor, you want to sell your services to bigger market and make a lot of money. And what about the issue of health promotion and health prevention if people will be unwilling to pay for health services.

So, if you see health as basic commodity like this, then chances is, you have a lot of unhappy people.

Because of that situation, a lot of countries access health as a basic human right, a provision in the constitutions that the government should ensure the health of its citizens. So, most of the countries adopt the tax financing healthcare provision system. You as a person pay taxes to the government, and the government use a portion of the tax money to build hospitals, to hire doctors, and provide healthcare services and benefits. That is the basic way of health financing.

The tax financing healthcare provision system has also issues; one is the quality of service, when you go to public hospitals, patients share beds, not enough medical supplies and inefficient system. This will result to catastrophic spending, people who need healthcare if they are not protected properly; need to spend extra money because the services being provided on this particular scheme are not good enough.
Another particular model is the social health insurance. This is generally for countries with large workforce, people pay for premiums and insurance and the government also contributes for the population below the poverty line. And with that, they cut the price of health services whether in public or private healthcare. But this particular system also has a problem; it is highly dependent on the ability of the government to regulate.

To complicate more, most of the countries where we are from, have a combination of one of these or all the systems.

So, UHC is going to address the gaps. Illustrated in the famous WHO UHC Cube are the three dimensions of UHC, first is the coverage, second is the quality of services given and last, the proportion of payment being paid by the people.

Advocacy of UHC:

- Prepayment – people should not pay the services when they need it. A small savings should be kept to pay the services.
- Cross Subsidization – the young subsidizing the old
- Risk Pooling – this is the difference between the social and private health sector health insurance.
- Equity and Solidarity to watch the under-privilege
- Financial Protection
- Quality of Care

The ministry of health is in the centre of UHC reform process. Through the Health Information System, the ministry is link to the health system of the whole country and tasks to monitor and evaluate different indicators.

I am not here to tell you what to do, there is no single bullet to the problem. First thing is you have to be involved in your country’s UHC discussions now, put it in your inputs on the health financing, create strategic plans, policy discussions and build awareness for the policy makers.

Standards Interoperability, Enterprise Architecture becomes more important now because you cannot have all these multiple silos. Start to join networks and learn from their experience so you can leverage your own country.

We are also doing a little bit of soul searching because we are also learning from our partners. We are striving to build awareness among country policy makers, we harmonize interventions on the things that are happening, and we facilitate joint learning when one country wants to learn from the experience of other countries.

That’s it, thank you very much.
Joint Learning Network for Universal Health Coverage

Kate Wilson
Senior Program Officer
Health Management Information Systems, PATH

The JLN Approach is threefold: adapt knowledge, share knowledge, and build knowledge. We carry out our activities under this approach. In adapting knowledge we engage directly with countries, contextualize common knowledge to country-specific needs, and offer new learning to share across countries. Sharing knowledge means conducting topic-specific cross-country learning activities and creating a community of policymakers and practitioners. Lastly, in order to build knowledge we document and share global experience, synthesize country experience into knowledge products, and make existing information more accessible and useful.

There are ten country members in the JLN made up of the founding members: Ghana, India, Indonesia, the Philippines, Thailand, Vietnam, and recently joined by: Kenya (February 2011), Malaysia (April 2011), Mali (October 2011), and Nigeria (October 2011). But the resources of JLN are open to all and can be accessed at www.jointlearningnetwork.org.

People often ask our team what are the benefit of these requirements and how do they relate to what we are doing in country. Our focus is on the common but what does that mean? Essentially, as systems people, we believe that there is some element of work that will be common amongst members. You may all solve how you do enrollment for instance differently but you all need to identify a person and verify that they have coverage. This is an example of a global common requirement. In addition, many countries are struggling with the question on the usage of HL7 or whether or not to develop a standard set of formats. Our job is to help offer some perspectives on this from across the JLN and other countries.

Let me emphasize, our work is not focused on telling any country what to do or not do but rather, help you understand what are some of the issues that then will need to grappled with at the country level.

ACCESS Health International, Inc currently manages the Joint Learning Fund and performs an in-depth review of the submitted grant proposals. The ultimate decision for approval of the grant lies with the secretariat of the Joint Learning Network for Universal Health Coverage. The Secretariat presently consists of ACCESS Health International, Inc. GTZ, IHPP Thailand, Results for Development Institute, and the World Bank. They dedicate significant human resources to support the management and operational activities of the Joint Learning Network.
The member countries are Thailand, India, Malaysia, Indonesia, Philippines, Ghana, Vietnam, Kenya, Nigeria and Mali.

Member countries can apply for this fund anytime of the year. The proposal has to come from as a need from the government or in support of the government of that particular member country. Thank you.
A Storytelling Approach to Enterprise Architecture Development

Derek Ritz
Principal, eCGroup

The idea of operationalizing guideline-based care for relies on three things: the “why”, the “what”, and the “how”. First, we need to understand why eHealth -- why exactly we want to use ICTs for health and why is there such need for guidelines in performing health interventions. Second question would be “what is eHealth”. A good definition shared by the speaker is that eHealth is an “industrial engineering intervention that helps in achieving better health”. It may be viewed in form the patient-centered care and even in the population-based health indicator. The third and last part is about how eHealth is done. The premise is that it should be in accordance with the standard operating procedures that is be institutionalized for health, commonly referred as the “guideline-based care”. Analysis of the health transactions of patients based on the medical workflow should be employed. Various scenarios in the health field from initial visit, testing, enrollment in specific health program, treatment provision, monitoring and follow-up and others should be carefully considered. The key is to find the building blocks based on common theme, and to reuse them for the health information system. Consequently, it would help in answering the questions of what would I need the eHealth infrastructure to do to support element of this path and make decision based on healthcare guidelines. The emphasis is on the crucial role of eHealth system, standard operating procedure and operationalizing those eHealth infrastructure that supports health delivery network.

I’ll be talking with you for the next 25 minutes, then for Shaun Granis. We had a talk at around 1 am and I decided to insert a little bit of extra content. We can skip through quickly.

Here the foci are: “why eHealth”, “what is eHealth”, and “how eHealth is done”. For the why, if you can explain to me why you want to do these ICTs then that’s the why. That’s the problem. We should be actually able to connect and if we can’t, then why? Why is the operationalizing and how eHealth would be setting up the guide. I’ll get to “what”. What is the health impact of implementing eHealth. Then we quite need to look at the guidelines. We need to be clear as to what are the impacts of health information to the population health.

What is an eHealth intervention? eHealth is an “industrial engineering intervention” and help us be better at healthcare provision. The act of implementing eHealth should be operationalized. If you actually implement health on a patient-centered care, you would be able to do computable significant transactions that are patient-centered. Then together, these transactions would generate our population-based health indicator.
We can change the health of many people in terms of eHealth intervention. That is the role of eHealth. However, in order to do that, there are many things to consider. There is the need for eHealth infrastructure at certain kinds of scale. It must support the continuity of care. To close the gap in health intervention should be prioritized as it would not be on static basis. We can then view the health transactions locally, and at the same time aggregate them for the population.

I heard about Health Management Information Systems and DHIS several times. In India precisely, the District Health Information System is widely used. The health information system includes patient-centric system and the population indicator system. Remember we need them both. Let us look at this cartoon. In this, we would view how we could operationalize guideline based care. The emphasis is on the crucial role of eHealth system, standard operating procedure and operationalizing those eHealth infrastructure that supports health delivery network. Lastly, having a guideline-based care would be beneficial at any scale such as in facilities like clinics.

In operationalizing guideline-based care, the art of generating system provides management with health metrics that are outcome based. For example, I am doing HbA1c for diabetic patients. These data can be collected to be used for our population-level indicators. Knowing the statistics from this indicator would relate to the financial concerns. Also, we may operate starting from this eHealth transaction that would be in accordance with our universal health coverage, that are linked with financial transaction.

So what is the standard operating procedure in one service to adhere to another service. That can be highlighted in the process of doing, supporting and institutionalizing our healthcare. Some fantastic efforts are from the National Institutes of Health in the US, to learn healthcare system. Employing eHealth can help me do a better job. Implementing eHealth affords a way to exert process control on health system, to optimize health production, and to do better job at health.

What do I need eHealth to do? Analysis of the flow was done by team of people were made on different conditions i.e. HIV, Malaria, TB, Antenatal Care, Emergency Care. First, we need to decide the common process running in the different healthcare service provision. We have to determine the local agent care. Monitoring visitation and healthcare transactions done plays also a big part. The workflow should be well understand, especially because this information flow almost always cross different institutions. So guideline-based workflow pattern was made from this analysis, description of ICTs that are long running. The process are datamodeling using rudimentary BPM (business process modeling).

Again, this cartoon would show how we can check the process. As we run through the examples, we can see the pattern of the flow of health interventions done. For instance, the first is in HIV testing, then to visit the HIV clinic, followed
by counseling, etc. The process is that if the patient is then considered not in HIV position, then they will not be enrolled in HIV program. Another example is for the patient presenting at the clinic, getting the vital signs, possible admission to emergency, testing (like HIV test), and check for the program if to be enrolled. Different health decisions will be based on this operation. The guideline-based care directs the administration of medication (antiretroviral therapy) and being enrolled in the HIV program, with monitoring and follow-up. Now, we were able to come up with the HIV management care process. Note that we should take special consideration that patients are not lost to follow-up. As patients live with HIV as a disease, there should be an “alert reminder” for follow-up, cd4 count and other tests. There may be adjustment to medication to continue act of care plan. Note the patient may move or died then no longer considered in the list of HIV care program. For whatever reasons, we may also escalate the care to tertiary care and then patient may at that time not part of target HIV program in the initial facility.

So what if I wanted to do that similar kind of pattern to somebody who is in PTB care program. Basically do the injection or medication and look through and enrolled for PTB care. Now we can check for the “reusable path”. In childcare (IMCI), somebody presenting childhood illness, check immunization records, give immunization, counseling mother, scheduling of all the treatments. The same way is also for the maternal and newborn. The point is to reuse the “pattern” in executing different guideline-based scenario like sending reminder, or providing care in the village, and check for the performance-based financing. In South Africa, cases of injury is part of global burden disease and needs emergency responders and specific guideline care. Transfer of care from ambulatory that needs urgent care for something that need to be sent to hospital and consequently, there’s no need to schedule followup. In public health emergency, the drinking water issue, that snes alert and check for symptoms in the clinic and prescribing of treatment for these symptoms.

All of these were generating transaction. I can then aggregate the transaction traffic. It could be “about me”, which will produce the “longitudinal record” like how the provider knows for diabetic patients. It could be by “institution”, which will lead to the institution management guide for facility and guidelines. This is true for other levels like in district, and national and for all reports needed.

The key is to determine the building blocks. They are the common theme; analysis, reuse building blocks based on common themes, and mechanism in aggregated pathway. This common process collected into an architectable path to traverse in common scenario. It help us answer question of what would I need the eHealth infrastructure to do to support element of this path and make decision based on guidelines. What do I need to do. Every scenario can be described. There are unique pathways of ICT to operationalize. It can support unique decisional logic and in this way describes a sort of superset of what other requirements for my eHealth infrastructure.
Single archetyping method in this caravan is to see same underlying ICT. This helps to frame what I need my infrastructure to do. Is this doable? How do we make it go? Indeed, we need this eHealth standards and eHealth process and support for operationalizing the guideline-based health care.
I will be talking about the Open Health Information Exchange (OpenHIE) community that supports the work that Derek talked about. What I am going to do is to talk about the beginnings of OpenHIE, I will talk about the specific instance or specific challenges, I’ll talk about the technical underpinnings, and I’m going to talk about the community.

Starting with the beginnings, OpenHIE started as a twinkle in the Rwanda Health Enterprise Architecture project (RHEA) which was funded by RDRC and Rockefeller foundation. In the 20 minutes as well, I will be putting in caveats, I will probably make some claims that you’re going to say - I don’t know that is unnecessarily true or I want to understand why he said that. This presentation is intended to stimulate some conversation, maybe simulate some thoughts, and I am not claiming that what we’ve discovered and observed are absolute gospel for everyone, but these are the ideas and patterns we found that tend to work.

RHEA helped form the beginning of the OpenHIE. Also the Health Informatics public-private partnership which was initially funded by PEPFAR, which is interested in Health system infrastructure strengthening, was an additional initiative that came together with the RHEA project to look at building the eHealth Infrastructure in Rwanda. We had a confluence of these two initiatives coming together. Why? I am a medical informatics Research Scientist and also a Family Physician. And so, I am blessed that I was able to do research in medical informatics and test somethings that works and didn’t. But I am also blessed to be part of what is the United States’ largest and longest running Health Information Exchange. And by virtue of that, I was also able to help the United States implement a nationwide eHealth infrastructure.

And all along this way, with all of these things, I am driven by the question: to what problem is this tool a solution? So we don’t want to make tools that look cool and shiny, but actually solve real problems. In Rwanda, what was the problem? We didn’t just want an eHealth architecture because we thought that it is a cool thing. And I think, to many people’s previous point, we need to justify why did it exists. So I have personal stories that I am happy to share with folks after this presentation why I think eHealth Architecture and health information exchange make a difference in health care. But that is not the central point of today.

Why did Rwanda do this? They have a real problem that they want to solve. So as most countries do, Rwanda had a strategic plan, within the strategic plan, Rwanda recognized that they have a very high maternal-child death rate, and they wanted to do something about that. They believe that eHealth strategy can help improving that strategy.
So we began by focusing on the current state of maternal-child health management in Rwanda. And like many other countries, I want to walk you through the three components of the health care process for mothers in Rwanda. These are the community health workers walking along the streets, visiting homes in different villages in Rwanda. She has the capacity to send via SMS phone, messages about the status of the pregnant women. There are also clinics, district clinics throughout Rwanda where pregnant women are supposed to be seen four times throughout their pregnancy. And this is the second component of the three component of the maternal-child health care process in Rwanda. The third component of course is the hospital where if a woman has a risk factor, they might be referred to that clinic.

The challenge of course is that these three systems, the community health worker, the clinics, and the hospitals are distinct, they are separate. And often, that sick patient, the patient with risk factor, often doesn’t make it to the place either the clinic or the hospital where they should. And the hypothesis is that, by integrating these three systems, you can provide better care and improve maternal-child health outcomes. So that is the why here. We need to integrate the local clinic, the community health worker in the village and the community hospital to coordinate health service delivery and provide bi-directional information flow to provide continuity of care. So this is the set-up, this is what Rwanda is looking to do with their eHealth infrastructure. Not to only serve this purpose but to create an infrastructure that starts with this use case and support other use cases.

So I will now talk about the technical underpinnings of OpenHIE to begin in the first place. This is probably the boldest claim I would ever make and I welcome pushback on this. There are six components that every country in this world would have in their health information exchange in ten years. The six components are on this slide. I will walk you around the six components. I make that claim based on my 40 years of experience in health information exchange, based on the emerging around the world, these patterns apply all over and over again.

First is the client registry, for whom or to whom the care is delivered. You have to identify the patient. You need to have a reliable method in identifying a patient.

Number 2, you have to identify the provider, the physician, the nurse, the respiratory therapist, the laboratory technician. We need to identify by whom the care is delivered as well as for whom.

Facility registry is a list of where care is delivered. We need to identify them. Many countries have different ways to identifying those facilities.

A terminology service is a way to manage health care dictionaries. You need to be able to describe what care was delivered. These should all be standardized and described.
The final two are supporting components. You need a persistence layer. If you are gathering those data, standardizing these data, you need to store it somewhere. And that is the shared health record – the integrated view of the standards.

Number 6 is the interoperability layer. We don’t assume that health care data are generated by one application. Health care data are being generated by a wide spectrum of health care application and the interoperability layer should be able to accommodate and receive the broad clinical data generated by various applications. So those are the six components. My challenge to you is to pushback if you think this is not true. Anyone of you in your countries will have a version of the six components operating in your country.

Now going back to Rwanda and maternal child use case. Another one of my principle is incrementalism. I don’t believe that it is easy to boil the ocean. I think you need to proceed step wise. We began with one of the many districts in Rwanda. And there are 10 clinics within Rwanda Ghana. In September of 2012, OpenHIE the version of Health information exchange for Rwanda was live in two clinics, currently, there are six clinics live within the Rwanda Ghana district and generating and sending data to the health information exchange. It is slow step, but we want to go faster that the reality allows us to but that is the current status in Rwanda. This is an example of a clinic in Rwanda and the infrastructure there is very challenging. What I want to make quick point about is that when we talk about technical infrastructure in details, as a Medical Informatician that 5% of my job is spent worrying about the technology. 95% of my job is spent on social, cultural, political issues, understanding human beings behind the technology, because sometimes, at the end of the day, there are humans after all running this technology. And if you don’t understand the need and priorities of individuals, and the constraints of those individuals, your technology won’t work.

If we talk about the OpenHIE the framework, we would be thinking the same time the eHealth literacy for health workers. I don’t think following this is surprising for these people. We need to think about the Health Information technologies. These all stakeholders that has a role in an eHealth infrastructure, ICT infrastructure which we heard a lot, eHealth strategy and policy framework, there is stakeholder for leadership, there has to be a leadership or guiding strategy. Finally, there are organizations like this one - Global, Regional, and National partnering strategy to make this work and learn from one another. The point of this slide is that we don’t view this as just a technical enterprise but very much as a human enterprise.

So OpenHIE, our mission to improve the health to the underserved. We live with that. This is all about improving health and health outcomes of humans. By the way, we think technology can help with that. You’ll notice that technology was not mentioned in here perhaps at the end when it talks about the architecture. We want to improve health through collaboration. Because in collaboration, we can be successful. OpenHIE has a focus on developing real world use cases that
fit in to the component that we believe is a very solid framework. We are working on developing communities. We have active communities around the six components. You are all welcome to join those communities so we can learn and know what your needs are.

These are the three points that I want share: Number 1, OpenHIE has six components that I think would be of interest in many countries. Because these are the components of a fully functioning health information exchange. Number 2, there is a real world enunciation of this in Rwanda, and number 3, this is a community driven process.
District Health Information System

Knut Staring
University of Oslo, Norway

Earlier today, we talked about sharing in community and district reporting.

District Health Information 2 is an open source Health Information System web platform that evolved towards shared, open backbone.

In terms of backbone, I think what’s good about having a solid backbone is you can adopt many different systems completely functioning. Medical records systems, Logistics; Human resource as well mobile application program tracking can be aggregated easily using DHIS2.

From a case-based data, data can be aggregated using an aggregation engine. The developers focused a lot on how to create an integrator or seamless tool to combine data from different sources. It allows data to be broken down and analyze from one dimension to other dimension. It supports dynamic data dimensions, data can be grouped according to gender and age groups.

On the upper left corner there is a link to the charts and maps and the idea is, you can use the same data for maps, same data for charts. Once you have the maps, you can experiment data search in the specific area. Reports can be generated and forwarded easily to the district and facility level.

To support areas with power fluctuation and not reliable Internet connection, data entry are stored locally and uploaded to the main serve once connected to the Internet.

Implementation challenges in Uganda:
- No power backup at the Ministry of Health server room
- No dedicated Internet connection for the server
- Lack of human resource to maintain the server and user support
- Power fluctuations and limited Internet in some districts
- No follow up on majority of the districts
DHIS2: Global Fund partnership to strengthen country HIS

Donna Lee
Global Fund

GF is results-based, consistent and comparable data across countries on internationally recommended indicators (WHO) US$ 20 billion disbursed to 150 countries in HIV, TB, malaria, HSS activities. US$ 1.65 billion expenditure reported by countries on HSS activities (HIS, CSS, HR, infrastructure, logistics…) Supports data improvement (rHMIS, analytical capacity, surveys, surveillance, administrative databases, community reporting systems…)

In supporting stronger HIS in countries, GF recommends 5-10% of grant budget to strengthen reporting systems. But spending is not always focussed enough on improvements in key system components or infrastructure (backbone, local skills sets…) Data quality assessments have been done to identify gaps and draw up investment plans to strengthen HIS.

The new funding model is rooted in country dialogue in which we take into account the need and gaps that Global Fund can help with.

In preparing the dialogue remember that HIV, TB, malaria disease burden data (WHO, UNAIDS) are taken into account when allocating funding. Work with these country partners to ensure accurate data. The latest national/sub-national disease information will be used to identify and fill gaps (national, sub-national, target-group data). There have been a number of practical HIS deliverables supported. These deliverables have costed HIS business plans such as MOH personnel trained as DHIS 2 implementers, DHIS 2 customised, integration of program data, CHW reporting, mobile reporting. The reports use harmonised indicator set then produced and disseminated.
Data quality assessments and investment cases have been supported. DHIS 2 has dashboards with tailored analytical outputs such as charts, maps, tables, and aggregate data sets for download. There is an end-of-year evaluation report and updated business plan. Concrete deliverables in DHIS2 are indicator and facility management, data collection, analysis and visualization, aggregate and patient-based (tracker). The DHIS Mobile clients has browser and use smartphone on j2me and uses SMS. The goal is to integrate with other systems. We leverage partnerships to support HIS such as Global Fund’s partnership with PEPFAR and NORAD to support DHIS 2. Collaboration with Oslo University, international health and development agencies (e.g. WHO, WB) on DHIS 2 planning, roll-out and implementation - based on country-driven, country-led demand (MOHs). A costing template to ensure plans budgeted with DHIS 2 implementation principles.

The first strategic investment of USD 2.7 million was made into Zimbabwe. It complements partner funds to ensure roll-out of DHIS-2 to all districts. The funds were transferred to the PR without delay using an implementation letter.

There is national roll-out and training in DHIS2 at all districts. Nurses trained to use frontline SMS (mobile reporting) in DHIS2. US$ 555 million has been approved in 2014-2016; of course robust reporting is essential for accountability. The investment will be for national roll-out and training in DHIS2 at all districts, nurses will be trained to use frontline SMS (mobile reporting) in DHIS2, linkages of DHIS2 communities, MOHCW, local centers of expertise, and integration with existing and future systems.
Open Fora
Day 1 AM Open Forum

After country ehealth updates participants got the chance to ask questions and give comments about the presentations. The first batch of presenters included Bangladesh, Bhutan, Cambodia, Lao PDR, Maldives and Malaysia.

In the open forum, the participants actively asked their primary eHealth concerns in their country. One of these was the mechanism to make sure that the health data of every people in the country is collected. Speakers shared their local experience in handling those cases. Some admitted that in cases of autopsy and some death, not all data are collected particularly in the rural area. Other countries were open to biometrics so there would be no duplicates in their definition. An initiative was the introduction of the electronic chip in the patient id that handle driving license, and other demographics but still on process for the health data.
The presence of unique ids in countries like Indonesia deemed to be helpful in their health information system. They use logical models in documenting the id, whether based on registries or not. Through this, they can facilitate sharing of records among agencies, although they are trying to manage the privacy and confidentiality issues. Most are shifting from manual to web-based reporting that is mandatory and with private help. As to the expansion of data collection, the role of the chief of villages and local authorities are useful to achieve a relatively complete data collection. As to who is responsible for the collection and security of the national registration, the answers were the following: Ministry of Health, Department of Registration, Ministry of Health Information System, among others, which differed per country.

Another issue brought up was that for the aggregation of data using a health information system. The interest leaned on the District Health Information System-2 (DHIS2). When asked about why it had been preferred for some countries like in Bangladesh, they shared that it was already tested in different countries and the robust community that will assist them in the problems, making sure that the system is always updated. Some issues though were that it oftentimes need internet connectivity to the root level for the submission, and there were shortage of manpower to work on the data. There was also the suggestion to use HIS like OpenMRS instead of simply aggregating numbers to this software.

In terms of interoperability of systems, it was also shared how the tool from the IHE (Integrating the Healthcare Enterprise). Then, the need for the data dictionary
and its accompanying semantic and syntactic definition was discussed, the understanding of the encounter and visit, and consideration of standards for terminology like ICD-10, etc. The advice then is for the different sectors to get the consensus on what data to share.

The last question was about who was the one responsible for collecting the data. The group agreed that it should be from the health worker itself as somebody else could increase chances of error. The principle was the need to preserve the data, in its right information, in its right form to ensure the data quality in the health information system.

**Day 1 PM Open Forum**

The open forum of the AeHIN General Meeting highlighted the essence of AeHIN not only as an organization but as a network of eHealth sharing, learning, volunteerism and friendship. Several countries are facing issues that may be similar and the idea is to help one another. The participants envision this network to be more action-oriented and consequently gain "adaptive technical assistant". Despite the limited resources and personnel, this eHealth network thrives on the passion of everyone to improve health of the institution, the country and the international community as their own responsibility. However, "capacity-building doesn’t come cheap" and the focus needs to be on the major problem with the need for resources. The principle of open source is recommended. To understand the technology and gain expertise, it helps to have peer-to-peer assistance. Knowing the existing possible solutions and the standards will alleviate the problem many members encountered. AeHIN is not an entity but a spirit of friendship that "when we help friends, friends will help us". Oftentimes the key is through listening to each other’s experiences instead of starting from scratch. By then, there would be a "multiplier effect of getting insights on how to do things, how not to do things, which will be powerful and influential".

**Mark Landry**: I just want to clarify about this concept of “Adaptive Technical Assistant”. I hope you'll find other countries having similar issues, same issues as you. What we want is to link up what are the specific technical assistant needs. To serve as example: “How do you take systematic process for unique identifiers”. So what does it take to do that? There may be four or five countries here with unique ids by working with institutions, ministries, departments or so forth. That's an example. It is important that this network will be more action-oriented. Country technical assistance develop partners to see value of resources in and see values out of it.

**Malaysian participant**: I see that AeHIN is a team of three people. I was in Bangkok and I was happy to see their residents good to me. The two possibilities
that everybody there is alive is to provide __ and the other one is to opportunities that it gives. I believe it is in the first one. Congratulations.

You mention many times in the presentation about the capacity building. This is something we are to focus on for the major problem. We have so many capacity-building at level. I think if AeHIN wants to be seen in something which is effective, it is what are areas you want to walk on. Then, this media would be able to use to work. And capacity building doesn’t come cheap. There are need for resources. We need to focus. We always use open source and I believe that countries in this region, are aiming for open source in their area rather than working in proprietary. It would work.

**Dr. Alvin Marcelo:** In AeHIN, it’s like getting economy of skill. Bringing the experts but we’re able to address three or four country requirements. There are five countries one at a time. We listen to expert. There is the multiplier effect of getting insights how to do things, how not to do things, which will be powerful and influential. Anything else?

**Dr. Samuel:** Thank you. From Mark Landy experience, the question on how we know and how we get from country. In Bangkok, I see more people email and listen. From now, how we get that consensus of things they didn’t know. How can we learn about the technology, and expertise. And even expertise, how can we get that one? How can we get the right start?

**Dr. Boonchai:** That’s a good question. Let us think “AeHIN is us”, not other people. We decide to help each other, peer-to-peer assistance. It’s similar in our countries, we can do trial and error. These are the right information, right solution. It is your own. You have to know what you need. You have to do the hardwork, dirty work yourself. But it’s how working in this countries can share experience knowing something that’s why can’t you do something like that. Coming together as friends. Provide what you can provide. That’s the spirit of the network. No one will say what is right or wrong. And AeHIN is in the air. I’m not AeHIN. Alvin is not AeHIN. Volunteerism works, be passionate to do this and do this for your country. We know that if we help friends, friends will help us. We can walk together, pushing through difficult agendas together in AeHIN. Remember in 2011, the title is the “Ownership on HIS”, I wonder why developing partner is asking; it is your job to this Information System. It is my country so it’s owned by us, it’s own by our region, our responsibilities. But we coming together, working together would be a great battle. That, we do with spirit. This might be the solution. Twenty or fifteen years to your country getting technical assistance on nowhere that’s my response to what is the right information and right solution.

**Dr. Alvin Marcelo:** Here is a personal story. In our country, we have clinic information system and there’s someone help finance management system. Because not knowledge is there, you know what is important in health finance. Later on, it might not be the software that we may need, but we can still get lot of knowledge. I don’t have to start from scratch. Others already started to work on things. In effect, we may know how can it help having finance done in hospitals. That’s very simple. Every person here has something to share. It’s just basically listening and what might be share and they be willing to share. That’s the AeHIN spirit. That’s basically the context why eHealth is growing. Our business
is health information. Remember the 523 years that Dr. Portia shared this morning. Five hundred twenty three years and very quickly tap on that wisdom.

**Muhammad:** Here is our country profile. For example, whose country profile we can ask for the appropriate information. We can ask this suggestion on AeHINN hour. Can we do some surveys when do we need to hold them? And also from the previous, the timing was not okay.

**Dr. Boonchaj:** Thank you Muhammad. I think I have to thank Alvin. He knows alot of people. Twenty five people that can help audit it. The time is very... we don't have the personnel and opportunities.

**Dr. Alvin:** I don’t know if Mark will allow, if the WHO will allow us the book of eHealth standards and interoperability. To go straight into standards without knowing what to use it for. Not really identifying what standards for, you don't know which standards will more for you. It starts with ourselves with our needs to slowly build up and we are now to use standards based on our business case. With that, I’d like to end the day with a big round of applause to all.
Day 2 Open Forum

There were several concerns and lessons shared in the forum with the second set of speakers. The significant role of standards was highlighted and the lack of sustainability was and is always an issue. Hence, it was agreed upon that it would be a reserved topic especially for the next discussions. They asked recommendations from countries for their profile like having eclaims. The systems had open web service although the mandate to make it integrated with HIS instead of stand-alone still needed to be determined. Some clarifications were made as to the definition of eHealth vs ICT in such a way that eHealth is the ICT that support health (as defined by the WHO). To perform eHealth, the significance to have Enterprise Architecture is a consensus in different countries. There are different available model for EA like Zachman, TOGAF, FEA, Gartner, and even hybrids of them depending on the context of the country.

Although the interpretation for the enterprise should not be like business to which government shy off, but rather think of it as analogous to city planning. In addition, the reason for low utilization of eHealth, and telemedicine in particular, was explored.

The main factor for all countries include more the human issues rather than technical. As a matter of fact, it was stated that telemedicine and teleconsultation are largely driven by champions. Finally, the discussion concluded that it is not ideal to invest much on the technology, which would be outdated years from now, rather focus on the essential workflow in the healthcare settings.

Dr. Fazilah Shaik Allaudin: Yesterday I think about the eHealth implementations in Indonesia. I think that is a good move even in Malaysia. But it’s still covering only commercial sector and not looking to healthcare. But we have other security too. We even have ISO. We have medical ethics action-oriented so I think that topic is important. All of a sudden, all are talking of ICT and so forth but not talking about sustainability. And we even move further when there is limitation in budget. So how do we move from there is a question?

Dr Portia Marcelo: So yes, please talk about...talking about this sustainability. All should be in sustaining effort. That should be part.

Participant: KDP and confidentiality action-oriented. What we have on is a Privacy Act 2000 and other than that there could have data but what we have to find out. Do we plan? I think we are discussing about statistics plan on regional standard. All developed works. So do we have to talk to standards, the reference and all the word for region. It’s good to talk as we are evolving. Standards are only standard in terms of scope.
**Dr. Alvin Marcelo:** I think Mark will talk. Jai if we took in schedule, we will not have schedule in discussion, there’s the resolution talk about it.

**Dr. Portia Marcelo:** Dr. Boonchai and Alvin, who are actually representatives of various countries. We have to think about specifically, not for meeting but to bring that up, but sustainability is part of leadership, and governance of leadership. A few more burning issues that you’d like to bring up? May we request countries to move up front. Things that you wanted to ask but didn’t have opportunity?

**Dr. Fazilah Shaik Allaudin:** Yesterday you presented under the PhilHealth. I just want to know about your eClaim systems. I just want to know if this is integrated with HIS or just a web-based stand-alone system and not mandated to system to DHIS.

**Ms Jovita Aragona:** Actually we have representatives from PhilHealth who can discuss about eClaims.

**Mr Bobby Crisostomo:** It’s in house because we’re using web service so we develop the system. This is where HIS is actually connected to. We open database to webservice so that we handle what they submitted online. The record that will prompt if partly connected due to web integration. Regardless of that, it is internally develop, of public standard dictionary add information given to hospital. IT guy will send specifically in PhilHealth. In 2013, we pilot that data from other that it can be submitted to us depending on submission.

**Dr. Fazilah Shaik Allaudin:** Just have one more because yesterday Thinley from Bhutan said eHealth was ICT and something about what is eHealth. I think it was in health strategy they just say that WHO defines health as a state of complete, physical, mental, and social well-being and not merely the absence of disease or infirmity”. So eHealth is ICT that support these. So I guess that could help.

**Dr. Alvin Marcelo:** Could you share that document?

**Participant:** What is the language that we have, number two is the weather typhoon. I think when you said about enterprise health architecture. So if you kindly enlighten me for the information of that because we are trying to do the same thing.

**Ms Jovita Aragona:** It’s not only in the eHealth architecture though the effort to form a group organized by the secretary for public private partnership. We have ICT4H (Information Communication Technology for Health). We have information system but if you look at the model like Zachman and see that initial architecture was focus on infrastructure. Because we are growing and it’s complex, an architecture about how our IT investment in our business processes in the Department of Health, where we refine our business process involved and how we align to the point that we describe can best be achieve through enterprise architecture.
There are four: TOGAF, Zachman, ... Each have strengths and weaknesses. When we study we ought to have a mix of them. Zachman is good in taxonomy; TOGAF is for the process; Federal Enterprise Architecture is for the reference guidelines and Gartner is more on implementation.

If you have your own, you see what you have and you want to achieve in the future, how to achieve it and also the involvement of the stakeholders. We alone in DOH can’t do that. We have help from UP NTHC and ICT4H. It is useful for us. From EA, we are now developing our eHealth plans. Whatever plans you have, it would be plan in EA. This is always work in progress. There is no perfect especially of information exchange. It’s there based on our expertise, we are guided by EA.

Dr. Marcelo: Unfortunately, our Mongolia representative can’t make it. Interesting. Jovy mentioned four EA, at least capacity building on TOGAF and might actually hybrid by the time of implementation. TOGAF training program but also open to fact that it might become a hybrid.

Dr Khadzir: With that, can I propose to AeHIN, I think we can share something we don’t want to repeat same mistakes. Just to hear it straight from you.

Derek Ritz: One of the things that I’ve been quite eager to do is to be honeybee; I’ve been involved in Canada work domestically. I see in Canada in early on and has helped frame to understand there were mistakes. One of the things that challenge that is not to be published. Because one of more helpful things is knowing what works for you that do not work for us.

It worked incredibly well to be very early on to be in EA. But even though it evolved over time, there are gap issues with it. Just the fact that we have the same page and mechanism to evolve and the work of Canada evolved since then. I experienced working in ISO and some viewpoints. Other approach, which ever you choose, you can make it work. Do not embark on it. It’s somewhat like city planning and it works.

If you don’t do city planning, put the building, you have to dig your septic system, no mechanism how to city’s steer other shared assets. Frankly, it’s a good idea of thinking systems and has certain ways for city planning analogy to know EA. For the Philippines, from where you were speaking and it’s a great start.

Dr. Boonchai: I think EA is when we last leave space seem to be more technical and people don’t understand. And city planning analogy is very good. To hear about reference architecture is at the same time good to me. Enterprise on some countries is more on business and not see kind the kind of city planning, so people of the government shy off those business.

Derek Ritz: I think is business is whatever system of interest fall in multi-viewpoints. Enterprise viewpoint is what is the role of the system or of the health care system,
the preventive health is how to execute. Systematic enterprise viewpoint is what data arises from that computation viewpoints, engineering viewpoint - designation. Technology viewpoint is more on the stack of technology. Everything is view of underlying systematic approach.

In Canada, the applied research lab, a working version of “Canada Infoway Blueprint” is the EA in Canada. There’s a saying it’s powerful. It works. It works. So you need to build system based on EA. Let it stand up and act on itself. In Canada, the thought were great ideas and need to be role of reference implementation. The working service is well for years. Many felt it was unfortunate example of EA 3 or 4 years before we have that reference implementation. It was never something that completed that working in Canada only to inform undergoing evolution of the country and i’m abdicating. Everybody is powerful it works

**Shaun Grannis:** I work at the Regenstrief Institute and work on OpenHIE and OpenMRS. Can I add a little bit comment on EA? Whatever words we found, I hear with you that it’s a scary concept. I always tried that if I can’t explain what I’m going to do with my grandmother, then I can’t go on then with the business of what I’m doing. Finding those patterns those recurring patterns on everyone strengthens those comment pattern that goes into the architecture. We’ll share more in this afternoon. There are some patterns that are unique. In your country with distinct region, there is overlap in the middle. But it’s important to understand how technology, people, government can operationalize those patterns.

When we have same set of commonality, learning from other people and enjoy hearing how your country identifying people. There are ids for facilities, dealing with privacy and policy, help to reinforce strategy. That’s the means to an end of solving problem that have logical patterns in mind when we build this EA, that’s incredibly complicated process. Stitching together helps ride lower layer of work. I am thinking of patient, provider, so much about aggregate report I don’t know about. But I think coming together and identifying common patterns, learning from Canada and other patterns.

But what matter was what are the common patterns that exist, and over time. I think in this part of the world, I think business needs permit. I think of a health sector information architecture. We’re adjusting the programs.

**Participant:** For DHIS2, my second question we have a lot of telemedicine representatives and HMIS. Yesterday in my presentation, we have also embarked telemedicine but utilization is very low. How to improve ICT initiatives in medical practitioners and initiatives in telemedicine?

**Dr. Boonchai:** I may share Thai experience. We embarked telemedicine 20 years ago and utilize medicine, expensive equipments. After 7 years, it just died down because of under utilization. I think the key is the business model for telemedicine and select the most efficient domain of specialty. It can be served
by the telemedicine, teleradiology, teledermatology and may not some difficult
like teleconsultation. Today people are using telemedicine every day. Doctors
from university will call rural hospital when they can’t find or solve cases and take
pictures, call their peers, call their seniors and get answers right away.
Telemedicine is tried to see business case of what we like to solve. Select the
good one; do not think about technology, else the telemedicine will fail.

**Participant:** I think about what Boonchai shared. We have variety of ways to do
telemedicine, teleradiology. We have services and even for teaching. We do
teleradiology rates every day and it happens with higher bandwidth.
Teleconsultation 5 days a week in two states in India. We do teleconferences via
connection that the link speed is not high but reliability is good in couple of times
and relative strong satellite. It never had breakdown, quite robust. And we also
have couple of simple email with predefined template: what is name, basic
demographic, video chat, skype.

It all depends on how you want to practice. That I can share but that sharing
based on your specific question regarding to your question to shift to DHIS. We
look at our HMIS from previous 1990 and it is thought the demand basically. It’s
according to the time and the demand from DHIS of all the sectors is highlighted.
That’s why we measure for areas but it has many under that needing tech
support and financial support. From WHO SEARO and Jyotsna can help to us
support like in Delhi. Some from Oslo norway and cam to Nepal and see all
those things sit together and revise and customize our DHIS system in line with
DHIS2. We have the 75 HIS and we are following district, now it’s going on. For
districts, we again customize and again update softwares so in that way we are
in the process of launching the dhis2.

**Dr Jai:** Simple exercise we did in telemedicine in india. We have about more
than 200 in situations using telemedicines but few activities using it. One reason is
the model with the government plan. Now people, more more on technology
spaces change -- simpler devices, better display. Things but infrastructure is the
same for the satellite connectivity. It’s free of cost and effective with having
good bandwith. It takes time to be uploaded or have telemedicine one at a
time. The government infrastructure satellite from goverment, you can’t chat
patient if patient admitted government for surgery.

Basically, it’s for private more on OPD for them certainly using from private
network. Simple problem they don’t have resources for telemedicines. Same
doctor 100 pts a day has same teleconsultation, doesn’t have time and for the
software initially, they come and they go away. There’s no contract. It’s more
on human issues that technical. For the two sites and two different states, we
have review meetings, couple of site visits, discuss with them. Unless we engage
them, doctor needs to contact specialists with best facilities over there. Patient
don’t utilize in South India hospital. Rather than not technical more on human.
We also need and found out more doctors support from technical team. Patient
need to contact specialist.
**Dr. Portia:** The National Telehealth Center is also trying to put telemedicine program. We’re in 389 municipalities with few regional facilities. Indeed same problems.

**Thinley Wangmo:** In telemedicine Jai has mentioned same problem of patient not drive to remote doctors and consulting them. We need on telemedicine that we can use in the system and call specialists in national hospital or referral hospitals like for diagnostics as recently we have included utilization of. Certainly, who supporting us, when we used web based system, lots of data entries, lot of things, BP, temperature, doctor from remote that are lazy I guess. More simple to have a teleconsult using telephone. So in order to face all issues, we project system and get teleconsultation in too much higher in Bhutan. Same images or other pictures, then we have email-based also in line. Quite a big problem for us is internet connectivity. But we hope that we’ll be utilizing telemedicine at the best.

**Participant from Vietnam:** Our experience in Viet Nam is that there are a lot of quick problem in telemedicine. The satellite hospital project for telemedicine has been the central house and make teleconsultation training, teaching and operation. And another project is telemedicine in island. We make good healthcare entry in island. People and telemedicine for doctor has mean for clinic care, for homecare, and people for perinatal care. For question in Viet Nam doesn’t mean lack of regulation framework for telemedicine. For example in operation in telemedicine, who is responsible for success for plan for patient?

The question is who will pay for the telemedicine service. Patient can’t pay usually. Telemedicine may be more expensive than that of medical. Who will buy for the professor and something for that? In hospital, it may be government. If we can’t solve the problem, telemedicine can’t be so efficient. We need cheap way for telemedicine service. This quest is in our experience then we can certain for things in Viet Nam.

**Dr. Portia:** Last questions?

**Dr. Jai Mohan:** I think what I wanted to bring up has largely been answered. Teleconsultation is largely largely driven by champions. You’ll find that one time. One discipline is very supportive. One center is doing a lot of teleconsultation. And after a while, after that, sleep. There is that need for effective role in teleconsultation. Second thing, technology changes so fast. There is expensive teleconsultation. 7 Million USD to set up for two sites, expensive teleconsultation. After 3 years up to date, it will no longer have support from companies. The revival in Malaysia’s teleconsultation to telemedicine, the mobile device has been the answer. Blackberry phones receive beautiful images, referral letters, and immediately. If doctor is willing, talk directly to them. In our country today, teleineurology supported by teleradiology and other disciplines can go. Don’t invest so much money in high technology. Not in hospital, they are reluctant to do because they have mobile including ipad and epad and good high
resolution smartphones. Wherever you are, that one is champion-driven, so we need to be looking for model that does not exist.