Regional Strategy for Strengthening eHealth

in the South-East Asia Region

2014–2020

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Regional Strategy for Strengthening eHealth in the South-East Asia Region, WHO (2014–2020)

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Regional Strategy for Strengthening eHealth in the South-East Asia Region, WHO (2014–2020)

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Acronyms

CME	continuing medical education
COIA	Commission on Information and Accountability for Women's and Children's Health
CRVS	civil registration and vital statistics (system)
DHIS	district health information system
eHealth	electronic health
HeLLIS	Health Literature Libraries and Information Services
HINARI	Access to Research in Health Programme
HIS	Health Information Systems
ICD-10	International statistical classification of diseases and related health problems, 10th revision
ICT	information and communications technologies
ITU	International Telecommunication Union
ISO	International Organization for Standardization
MDG	Millennium Development Goal
mHealth	mobile health
MOVE	Monitoring of Viral Events
PAHO	Pan American Health Organization
SDMX-HD	Statistical Data and Metadata Exchange – Health Domain
SEAR	South-East Asia Region
SIDAS	SEARO Integrated Data Analysis System
UHC	Universal Health Coverage
WHO	World Health Organization

1. Introduction

Challenges in achieving health targets, such as the Millennium Development Goals (MDG), and growing consumer demand, have compelled health planners to look for innovative ways to improve the outcomes of health-care and public health initiatives while controlling service costs. Health systems must address diverse population needs, provide high-quality services even in remote and low-resource environments, and improve training and support for health-care workers. Services that can be scaled up and are reliable (despite any infrastructural deficits) and cost effective are in high demand worldwide, especially in low- and middle-income countries.

The World Health Organization (WHO) defines electronic health (ehealth) as the use of information and communication technologies (ICT) for health. In its broadest sense, eHealth is about improving the flow of information, through electronic means, to support the delivery of health services and the management of health systems to become more efficient and effective (1). eHealth is also described as a means to ensure that "the right health information is provided to the right person at the right place and at the right time in a secure, electronic form to optimize the quality and efficiency of health-care delivery, research, education and knowledge." Tools for eHealth are designed to improve health surveillance, health system management, health education and clinical decision-making, and to support behavioural changes related to public health priorities and disease management. eHealth encompasses a diverse set of informatics tools and processes that have been designed to improve public health and health care.

With further development in ICT, especially in mobile technology, mHealth comes into focus as an important part of eHealth. mHealth is the use of mobile and wireless technologies to support the achievement of health objectives and viewed as having potential to transform the face of health service delivery across the globe (5).

Experience shows that harnessing ICT for health requires strategic direction and integrated action at the global and regional level, to enable Member States to make the best use of existing capacity while providing a solid foundation for investment and innovation.

1.1 WHO's policy direction

Recognizing that the field of eHealth is rapidly transforming the delivery of health services and systems around the world, WHO has played a central role in shaping and monitoring its future, especially in low- and middle-income countries.

WHO has a normative and standard-setting function as part of health-system strengthening. Integral to advancing health care is the need for appropriate use of ICT to deliver better quality health services, reduce cost and achieve universal access to needed health services in an affordable way.

Through systematic work with standards development organizations, global health partners and international organizations, WHO provides leadership in coordinating the adoption of eHealth standards at national and subnational levels.

In 2003, at the World Summit on the Information Society, eHealth, or the application of ICT to the field of health care, was considered a discipline that could prove very useful in terms of improving the quality of life of the population.

In 2004, the WHO report on eHealth (EB115/39) (2) and related resolution (EB115.R20) (3) addressed the need for Member States to formulate eHealth strategies reflecting the principles of transparency, ethics and equity. The resolution also encouraged Member States to develop the necessary infrastructure to that end, and to promote multisectoral participation via public–private partnerships.

In May 2005, the Fifty-eight World Health Assembly adopted Resolution WHA58.28 (4) endorsing an eHealth strategy for WHO and urged Member States to plan for appropriate eHealth services, infrastructure and capacity in their countries. The detailed provision of the resolution is attached as Annex 1.

The following enabling areas for action were emphasized as essential for development of eHealth in the countries represented at the 117th meeting of the WHO Executive Board

- an appropriate legal and regulatory environment
- norms and standards
- access to information
- public–private partnership for ICT research and development
- gathering intelligence on eHealth.

The use of ICT was also integrated into the United Nations development agenda as MDG 8, in particular Target 8F: "In cooperation with the private sector, make available the benefits of new technologies, especially information and communications". Since that time, ICT has become central to health security, health services delivery and the transformation of health systems worldwide.

The "Global Strategy for Women's and Children's Health" (5) called for WHO to chair a process to determine the most effective international institutional arrangements for ensuring global reporting, oversight and accountability for women's and children's health.

In response, a Commission on Information and Accountability for Women's and Children's Health (COIA) was created, which proposed a framework for global reporting, oversight and accountability for women's and children's health. Through 10 recommendations presented in its report "Keeping promises, measuring results" (6), the Commission has created a system to track whether donations for women's and children's health are made on time, resources are spent wisely and transparently, and the desired results are achieved. Six of the 11 countries of WHO South-East Asia Region (SEAR) have been prioritized by COIA.

The third recommendation of the COIA focuses on significant improvements in the integrated use of ICT in national health information systems and health infrastructure, by 2015.

During 2006–2011, the regional committees of the WHO Eastern Mediterranean and African Regions and the Directing Council of the Pan American Health Organization (PAHO) have adopted resolutions in the area of eHealth, including endorsing the Regional Strategy for the Eastern Mediterranean and American Region.

The WHO Global Observatory for eHealth (7) has studied the evolution and impact of eHealth in Member States.

- The first global survey of the Global Observatory for eHealth in 2005 focused on the needs and status of building foundations for eHealth.
- The second global survey in 2010–2012 brought together evidence on trends in eHealth policies and strategies, mobile health, telemedicine, eLearning, management of patient information, legal frameworks, safety and security on the Internet, and the organization of, and support for, eHealth in countries.
- The global survey of the Global Observatory for eHealth 2013 will focus on the use of eHealth for women's and children's health, and the six COIA countries in SEAR have undertaken this global survey in 2013.

The "National eHealth strategy toolkit" (8), developed jointly by WHO and the International Telecommunication Union (ITU) in 2012, provides governments with a method for the development and implementation of a national eHealth vision, action plan and monitoring and evaluation framework, capturing the national context and priorities, building on available capabilities, and taking advantage of opportunities to complement development projects.

Additionally, several other initiatives and projects have been taken up by WHO, such as the HIS-ISO (Health Information Standards – International Organization for Standardization) standard exchange format (Statistical Data and Metadata Exchange – Health Domain; SDMX-HD (9); Global Health Observatory (10) Code list inventory and Repository of country health reports (11); ePORTUGUESe (12), and open source health information systems for aggregated and disaggregated data.

1.2 Benefits of ICT for the public health arena

Addressing the use and application of ICT in the field of public health offers the promise of innovation, as well as socio-sanitary and economic benefits (13, 14) to any country that pursues them.

- From the standpoint of innovation, eHealth makes it possible to change work processes and improve communications, interaction, risk management and patient safety, thereby ensuring evidence-based decision-making and generally enhancing the safety of patients.
- From the socio-sanitary standpoint, applying technology to health-care processes can improve the quality of life of patients and the general population. Health-

care services will therefore become more personalized, integrated and seamless. Moreover, these new services can help to overcome geographical and time barriers in terms of waiting times and access to health professionals.

- From the economic standpoint, the benefits of using technology in the field of health can heighten efficiency in time and resource use, improve input for complex decision-making, and set priorities on the basis of scientific evidence.
- From the standpoint of future planning, technology can help to provide timely data to allow decision-makers to easily identify areas to be focused on and actions needed to address challenges, should forecasts or models from collected data reveal emerging trends.

2. Overview of eHealth in the WHO South-East Asia Region

2.1 eHealth initiative in the Region

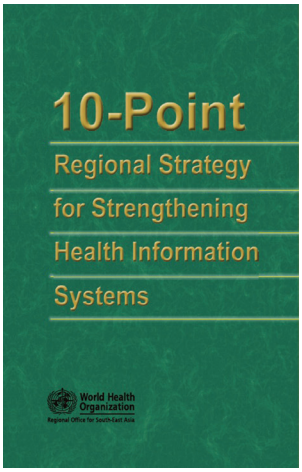
eHealth, as its definition indicates, is a broad domain that includes mHealth, telemedicine, eLearning and all use of ICT to promote, support and strengthen the entire continuum of health care – promotion, prevention, treatment, rehabilitation and palliation (15).

eHealth in SEAR is applied for strengthening health systems, especially health information systems (HIS) and service delivery, both of which are very important and are essential components of any health system.

One of the strategic areas of the "10-point Regional Strategy for strengthening health information systems" (16), endorsed by the Regional Committee 2010, is to promote application of ICT for strengthening HIS in the Region.

SEAR is engaged with Member States to provide technical support for developing their national policy and strategy for eHealth. The six countries prioritized under COIA have included developing a national eHealth policy and strategy in their roadmap to implement the COIA recommendations.

The guidance tool to assess countries' civil registration and vital statistics (CRVS) system, developed by WHO and the University of Queensland and pilot tested in Sri Lanka in 2009, also suggests the use of ICT for strengthening CRVS.



Most recently, the Regional Office has been developing training manuals on HIS and hospital information management systems and is working to establish an eLearning platform for Member States. All these training materials further encourage the use of ICT.

WHO provides technical support to the countries in SEAR, as requested, for the development of their existing HIS through customization of open-source-based systems for aggregated and disaggregated data. Efforts are under way to support Bangladesh, Bhutan, Nepal and Sri Lanka in this regard.

The WHO Regional Office has also embarked upon implementation of the Regional Health Observatory (17), an integrated and interactive web-based platform, to improve the availability and use of health data for decision-making at regional and national levels.

Creation of an indicator metadata repository will also be undertaken, to standardize the definition of indicators used across the region and enhance the comparability of data.

Many countries of the Region have implemented various projects in the area of eHealth: some notable ones are telemedicine in Bhutan and the Democratic People's Republic of Korea, SEARO Integrated Data Analysis System (SIDAS) in Maldives, MOVE-IT (Monitoring of Vital Events) in Bangladesh and Indonesia, eMamta – maternal and child tracking system in India, District Health Information System (DHIS) in Bangladesh, and electronic medical records in Sri Lanka. A regional consultation on telemedicine in the Democratic People's Republic of Korea, from 30 July to 1 August 2013, provided a forum to share lessons learnt from the countries of SEAR and different countries in three other regions of WHO (Eastern Mediterranean, European and Western Pacific). During this meeting, discussions took place on further opportunities and direction for acceleration of telemedicine in line with the efforts to achieve universal health coverage (UHC) by increasing access to health-care services. The meeting contributed to building a regional consensus that all efforts to introduce ICT innovation into the health sector, including telemedicine, should be directed and coordinated as part of a holistic eHealth approach and, to this end, the meeting recommended the Member States to develop national eHealth strategies.

Exemplary practices of using ICT were found in conduct of health surveys such as the Global Adult Tobacco Survey in four countries of the Region (Bangladesh, India, Indonesia and Thailand), the Noncommunicable Disease Risk Factor Survey (STEP survey) and cohort mortality studies in India. A handheld machine connected wirelessly with a database was used to collect data in the field, facilitating the speed of data transmission and improving the accuracy of data.

2.2 Challenges

Considerable inequalities persist in SEAR in access to health services, owing to a series of factors that limit the possibilities of receiving timely quality medical care. These factors include insufficient human resources and infrastructure, lack of equipment and drugs, the physical and cultural distance between the services and the population that needs them, and low incomes. Hence, based on income level, geographical location and ethnic origin, millions of households in the Region are vulnerable and excluded from access to health services (18). Therefore, the most important challenge is to "reach the unreached" population.

In SEAR, the main challenges in the health sector are:

(1) limited access to health services by broad segments of the population, owing to economic, cultural, geographical and ethnic differences;

(2) overlapping epidemiologic profiles that make it necessary to adopt a number of different health strategies simultaneously, to cope with the burden of communicable and noncommunicable diseases (the latter of which have increased due to ageing of the population);

(3) insufficient infrastructure, including ICT Infrastructure, as well as limited human and financial resources; and

(4) wide gaps in the quality of service between rural and urban populations.

While industrialized countries have raced forward in developing eHealth, many low- and middle-income countries still remain at the starting line (18). It has often been argued that eHealth is an unwise investment for low- and middle-income countries where essential needs like water and sanitation, housing, food and basic education are not being met. Concerns have been raised that low- and middle-income countries might invest their limited resources in dazzling equipment, to the detriment of more productive approaches like the development of human capital, providing quality services, and generally enhancing the performance of health systems. The eHealth community needs to examine how ICT can be used to improve efficiencies in the delivery of basic health services (19). Efforts also need to be made by the eHealth community to ensure that it is driven by need-based and evidence-led "technology pull" (18, 20) rather than "technology push".

The following are some of the key challenges around eHealth in SEAR:

- lack of eHealth policy and strategy and corresponding legal boundaries defined to support the national health system;
- uncoordinated investment in ICT in health, owing to absence of an overarching plan for eHealth in individual countries and the Region;
- a low degree of cooperation, collaboration and sharing across all sectors, resulting in duplication of effort;
- limited capacity or capabilities within the public sector to implement eHealth programmes of the country or the Region;
- widely differing levels of eHealth maturity across and within countries;
- HIS exist in silos, and are segmented and disparate by disease-specific control, health programmes or donor-driven initiatives, with little or no interoperability and communication; this results in poor quality of, and disparities in, reported data;

- poor communication infrastructure, such as lack of broadband connectivity and Internet access, owing to high cost, preventing the introduction of ICT in health in many of the most needy places; and
- lack of cooperation between potential stakeholders within countries, between countries and within the Region, resulting from lack of understanding that eHealth encompasses the use of all ICT for health, such as mobile technologies, telemedicine equipment and electronic patient records. This lack of cooperation prevents urgently needed progress in using eHealth as an enabler.

2.3 eHealth maturity in the Region

A 2010 study by the ITU (2) found that, the average proportion of fixed telephone lines in SEAR was 6.01 per 100 inhabitants, and 69.53 per 100 inhabitants for mobile phone access. With regard to households with Internet access, the average was 13.77 per 100 inhabitants in 10 countries in the Region.

The landscape analysis of HIS in low- and middle-income countries funded by the Bill and Melinda Gates Foundation (21) provided a categorization of five stages of eHealth maturity as countries move toward systems of greater scope, scale and sophistication in HIS (see Box 1). These stages are based on data flow and collection; data utilization and integration; resources and capacity; scope; and scale.

Box 1: Five stages of eHealth maturity (22)

Stage 1 – Paper-based systems for collecting district health indicators

Stage 2 – Optimization of paper systems through simplifying indicators and reducing duplication

Stage 3 – Migration of traditional district health information systems to electronic storage and reporting

Stage 4 – Introduction of operational ICT systems as a source of data for health information systems

Stage 5 – A fully comprehensive and integrated national health information system

This report placed India and Indonesia at the transition between Stage 1 and 2. However, since eHealth maturity is linked to resource availability, most countries of the Region are at Stage 1, while some countries may have individual provinces or districts at Stages 2 and 3.

Thus far, none of the countries in SEAR are at Stage 3, and progress has been ad hoc, with much variation even between regions within countries. Going forward, there is a need for a streamlined strategic direction, to ensure system-wide enhancement of the use of ICT for health.

The use of ICT in the health sector continues to grow and is driving significant changes in the way the populations interact with health services (19); this is diminishing the aforementioned challenges.

Health-system strengthening is the cross-cutting and priority issue in the health sector, required to ensure equity and equality of health services (19, 22). The major target application of ICT in health is strengthening the six building blocks of health systems – service delivery, health workforce, information, medicines, financing and governance. The current scope of eHealth covers the following three components of health-system strengthening in the Region:

(1) HIS (health informatics, HIS, electronic medical records, health management information systems, geographic information systems, etc.);

(2) service delivery (telemedicine, telesurgery, etc.);

(3) knowledge management (the Access to Research in Health programme (HINARI)/ Health Literature Libraries and Information Service (HeLLIS), etc.).

The eHealth programmes in the Region have identified some practical applications for the use of these technologies in health systems and services, as well as their advantages for health-care workers, patients and citizens in general. Information technology management plays a key role in expanding the coverage of health services to remote areas, where the introduction of mobile technology has proven critical in addressing the health needs of rural populations during health emergencies and disasters (20, 23).

The Regional Office places particular emphasis on applications of eHealth for prevention and patient management, and on providing support to Member States in establishing safe and reliable applications through adoption of sets of basic requirements for care-delivery services. Telemedicine projects have been initiated in almost all the countries of the Region. Most Member States in SEAR have taken steps to create an enabling environment for the use of ICT in the health sector, such as enacting legislation, framing policy, training of specialists for health, establishing an IT section in central-level hospitals for maintaining eHealth systems, introducing telemedicine, and instituting eProcurement.

2.4 eHealth standards

For successful implementation of an eHealth strategy (24), technical standards are required to ensure regional compatibility, interoperability, open architecture, modularity and capacity for upgrade. Regional eHealth standards would enable the procurement and implementation of affordable, cost-effective, accessible technology that complies with these standards and is contextualized to the country context.

In general, WHO has provided technical support to the countries in the adoption and adaptation of international standards for the country setting.

Internationally, a wide range of eHealth standards have been developed by standards development organizations like ISO and CEN (Comité Européen de Normalisation), such as ISO/TS 18308:2004 (requirements for an electronic health record architecture) or ISO/TR 20514:2005 (definition, scope and context of electronic health records).

Recently, the Regional Office has supported the countries of the Region to revisit their existing death-reporting system, based on the WHO death certificate form, in an effort to standardize this system for further facilitation of an e-based death-reporting system, as a part of upgrading CRVS.

WHO is working closely with heath information standards committees of the Member States by providing technical support to standardize health information in the context of eHealth.

In SEAR, technical support is being focused to encourage adoption of health data standards such as LOINC (Logical Observation Identifiers Names and Codes), HL7 (Health Level Seven), SNOMED (Systematized Nomenclature of Medicine) and SDMX by the countries.

3. Vision, mission and goal of the regional eHealth strategy

3.1 Vision

By 2020, affordable, appropriate and sustainable eHealth is established as one of the foundations of health systems in achieving the desired health outcomes in SEAR.

3.2 Mission

From 2014 to 2020, assist and collaborate with Member States in their efforts to establish eHealth as an integral part of the transformation, responsiveness and improvement of health systems, for equity and equality in the preventive, promotive, curative, rehabilitative and palliative health care to all of their populations, in an effective, efficient and responsible manner.

3.3 Goal

To provide harmonized and comprehensive eHealth strategic framework and support to Member States in implementing the strategic framework by 2020.

3.4 Key principles

Keeping in mind WHO's leadership role to ensure that ICT improves outcomes for health, particularly for the poorest populations in the Region, countries of SEAR are encouraged to adhere to the following principles:

- hold full ownership and responsibility for eHealth initiatives, including intellectual property ownership;
- take an incremental and iterative approach – build on what already exists in both the public and private sectors and fill the gaps where necessary;
- establish coordination mechanisms within the country and between countries in the Region, to improve the effectiveness of eHealth at all levels, for the required initiatives: (i) integration between systems; and (ii) enforcement of common standards, norms, terminology and systems across the country and the Region;
- pursue a collaborative approach by leveraging partnership between the private sector, nongovernmental organizations, government departments, other country governments, and research organizations;

- protect information security, confidentiality and patient privacy at all times;
- consider available open-source solutions for cost effectiveness;
- respect culture, ethics, rules, regulations and principles embedded in national HIS management;
- inform and impart knowledge to country governments, local organizations and relevant health-care workers, to enable ownership and comprehension;
- enable patients to participate in their health-care choices and facilitate "user-driven health care".

4. Strategic objectives

Strategy is the rail on which the eHealth enterprise runs. It provides a roadmap and a guide for coherent eHealth activities across geographies, institutions and providers within a country or a region. The regional eHealth strategy is envisaged as an enabler for countries to derive mutual benefit through a common approach to eHealth, and the basis for convergence of multiple efforts with eHealth as a driving force of health-system strengthening.

The major focus of the current eHealth strategy is placed on:

- strengthening the health system;
- integration, decentralization and the elimination of obstacles hindering access to services;
- optimal management and development of infrastructure and human resources;
- promotion of community participation;
- mobilization and strengthening of support networks;
- establishment of intersectoral and public–private partnership;
- strengthening of national science and technology output;
- taking advantage of the regional experience of public health programmes;
- supporting the creation of legal frameworks surrounding ICT, with a focus on privacy and confidentiality and laws for secure storage and exchange of health information for care recipient's information.

4.1 Strategic area 1:

Policy and strategy – Promote and support the formulation, execution and evaluation of effective, comprehensive and sustainable public policies and strategies on the implementation of eHealth through shared responsibility of health and allied Sectors.

Objective 1.1 – Support the formulation and adoption of people-centred eHealth policies and strategies and their implementation

Health systems in the Member States of SEAR are challenged by limited public health resources, and, in some countries, dominated largely by poorly regulated private medical sectors. As a result, various eHealth and other ICT initiatives are not people centred or driven by a public health approach, and they are unable to capture real disease burdens, because many cases registered in the private sector are omitted from the health management information system.

National eHealth policies and strategies receive less interest from the private sector, despite its contribution to overall improvement of the health system. Therefore, national eHealth policies and strategies should include both public and private sectors in their scope, and collaborative support to Member States by WHO may facilitate the involvement of the private sector and other stakeholders in constructing a national eHealth policy and stratagy.

Countries in the Region have completed, or are in the process of developing, various policies and strategies shaping future eHealth prospects, such as:

- ICT policy dealing with the application of ICT for health-sector development;
- HIS strategy, with components on the application of ICT for integrated health information systems;
- telemedicine strategy;
- mHealth strategy; and
- eGovernance in various sectors.

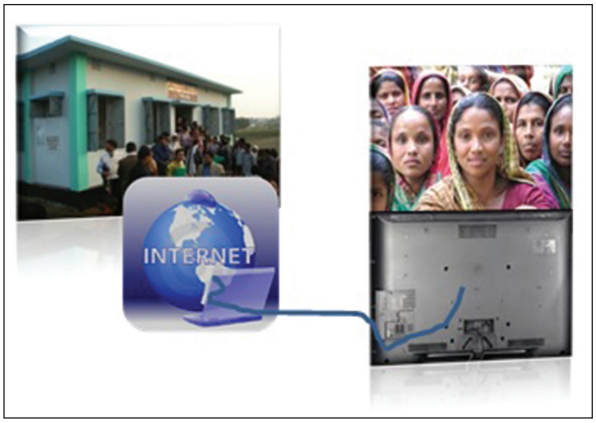
The aim of developing these eHealth policies and strategies is to help countries improve the efficiency and management of their health system and health outcomes.

The WHO/ITU "National eHealth strategy toolkit" (8) is a useful resource that can be recommended to assist countries in developing their national eHealth strategies. Countries are encouraged to adopt the toolkit as a reference document, in contextual relationship to their specific needs, and to learn from the experiences of other countries, while developing their own national policy and strategy for eHealth. The Regional Office will support any Member State to review and update any existing telemedicine or eHealth-related policy or strategy, in accordance with the needs of each country. It will also support countries in developing legal frameworks that enforce patient privacy and data security in HIS. The importance of patient privacy is further highlighted in Objective 3.3.

Progress in the development and implementation of eHealth policies and strategy in SEAR will be reviewed and discussed at regional meetings, organized on an annual basis by the Regional Office, until all Member States have established eHealth policies and strategies. These regional meetings will provide opportunities for sharing experiences and endorsing the regional eHealth strategic direction, to accelerate eHealth in SEAR, while harnessing other initiatives such as COIA, MOVE-IT, etc.

Objective 1.2 – Encourage Member States to set eHealth as a political priority at the national and regional levels

Considering the growing importance of eHealth and its potential impact on people's health in the Region, there is a strong need to highlight eHealth in political discourse as a priority for health outcomes at regional and national levels. This will help to mobilize the required technical, human and financial resources for appropriate promotion of eHealth.



The Regional Office will establish a high-level advisory committee at the regional level that advocate for placing the eHealth agenda in appropriate political forums, and review its progress.

Member States will also be encouraged to develop similar mechanisms. They may also consider having such a mechanism at subnational level, if required.

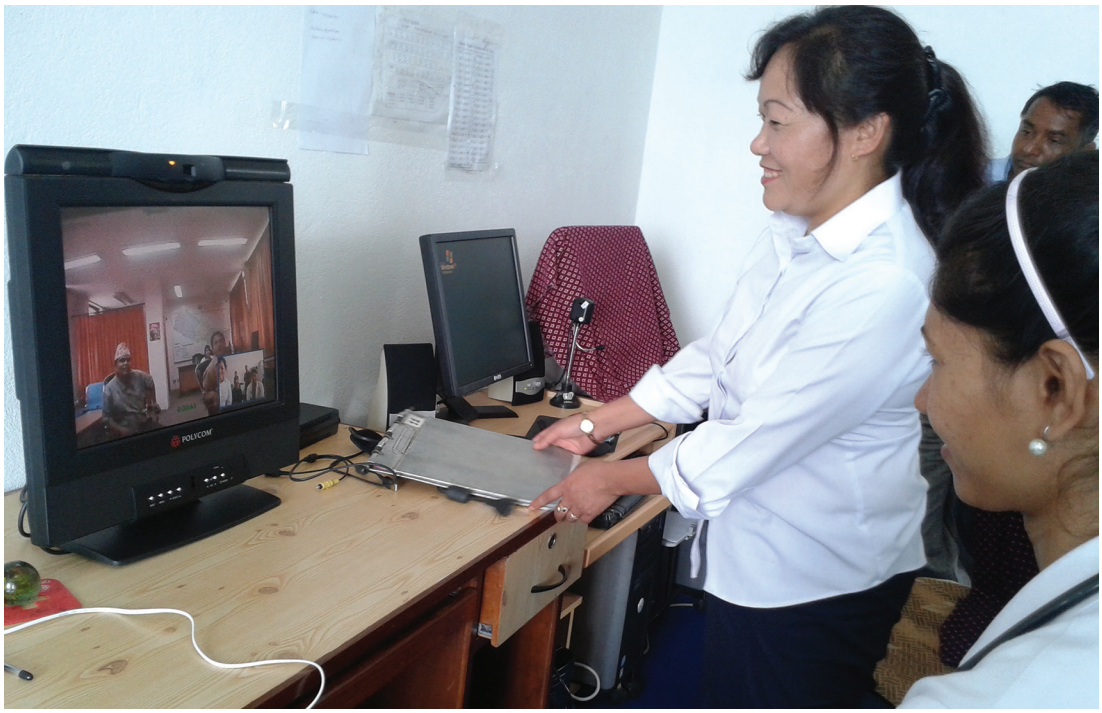
Objective 1.3 – Support the establishment of a regional and national intra/inter sectoral networks (public, private, civil society and others) to participate in the formulation and execution of eHealth policies and strategies

For the sustainability and success of eHealth, the role of civil society and the private sector, in addition to national authorities, needs to be emphasized. This can be achieved by supporting collaboration and networking of these entities at national level.

The Regional Office will support institutional mechanisms for the formation of partnerships at national level to promote eHealth. This will help not only in better formulation of eHealth policy and strategy, but also in proper and timely implementation of policies and strategies. It will also promote closer public–private sector collaboration in the use of ICT for health (25). It will be recommended that a steering committee or technical working group with interministerial representation; professional groups; and high-level technical experts are in place, to decide about the technical (generic) specifications, the design of eHealth enterprise architecture, and open standards. It will provide technical advice and guidelines that support the operation of e/mHealth.

Objective 1.4 – Establish a system for periodic assessment of the regional/national eHealth policies, strategies and progress of implementation

Keeping in mind the fast-evolving ICT environment and the dynamic nature of health challenges, it is very important to review and analyse eHealth policies to ensure their continued relevance. Regular review of resource allocation and stakeholder engagement is also essential to realize optimal benefits from the eHealth policy.



The Regional Office will establish a mechanism for regular review and evaluation of eHealth policies, using tools and methods as appropriate and globally applicable. The "National eHealth strategy toolkit" (8), developed jointly by WHO and ITU in 2012, would also be a useful tool to this end, as an initial guide. It provides governments with a method and procedure for the development and implementation of a national eHealth vision, action plan and monitoring and evaluation framework. WHO will further extend support to countries of the Region to develop plans for monitoring and evaluation to assess eHealth strategies, strategic plans and programme implementations.

4.2 Strategic area 2:

Tools and methods – Improve health of people through the use of tools and methodologies based on innovative use of ICT

Objective 2.1 – Improve organizational and technological infrastructure for eHealth

The growth of organizational and technological infrastructure for eHealth has been uneven among and/or within countries, with no, or inadequate, attention to any standardized architecture. Given the importance of eHealth, the development of adequate infrastructure through multisectoral engagement needs to be prioritized; this is essential for the adoption of standards and to ensure interoperability of different systems within and outside the country. Proper management mechanisms at different levels, including trained human resources with clear roles and responsibilities, will be a prerequisite.

The Regional Office will support the Member States to establish a mechanism to review and update their own eHealth technology and organizational infrastructure, to enable them to support national application in a coordinated and efficient manner, and countries will be encouraged to promote equitable and affordable access to eHealth infrastructure.

Countries should ensure the following steps are taken in sequence, for better collaboration with ICT ministries and/or other relevant ministries, in establishing ICT standards and infrastructure:

(1) develop the national eHealth strategy in response to the national health plans and health-service delivery strategies;

(2) design the national eHealth enterprise architecture, with adoption of standards for health data, data exchange and interoperability; and

(3) ensure engagement with ICT and other relevant ministries throughout the process of implementation of the eHealth strategy, by making a memorandum of understanding.

The Regional Office will also support countries in developing implementation plans for upgrading their organizational and technological infrastructure for eHealth. Upgrading country infrastructure will require strengthening of country capacity and adequate mobilization of resources, in a phased and planned manner. Integration of ICT tools will also be encouraged as far as possible, so that there is one integrated environment, and systems that are in use maintain the data that are held and have access to the latest updated information. In certain settings, cloud or other appropriate computing technology can provide additional infrastructure without large investments in hardware and software.

Special efforts will be made to harness the momentum of exponential growth in communication infrastructure, through appropriately utilizing eHealth technologies to strengthen HIS and service delivery.

The Regional Office will also encourage the use of open-source software to support the development of integrated HIS with less financial burden than that associated with proprietary tools, for resource-limited countries.

Objective 2.2 – Promote the use of ICT for strengthening national health information systems, including epidemiological surveillance systems, drug and logistics management systems, financial systems and electronic health records.

ICT and eHealth offer tremendous opportunities to strengthen various monitoring and surveillance systems for timely action to improve health outcomes. ICT applications enable the integration of different HIS, such as epidemiological surveillance systems, monitoring and evaluation of drug/logistics, and financial management in the health sector. Combination of electronic medical records with hospital information systems and a national health management information system can contribute to UHC.

Using computers, Internet, mobile phones and other mobile devices can efficiently improve the collection, collation and analysis of public health, health services and epidemiological data. This will support timely and better decision-making and contribute to saving lives. Additionally, emerging and re-emerging infections and zoonotic diseases require intersectoral coordination – ICT can be useful in improving information-sharing and coordination between concerned stakeholders.

Adherence to common data standards, with a focus on data interchange among various electronic medical/health records and HIS, is paramount. Web services, application programming interfaces, and common formats between systems allow disparate systems to more easily combine data for broader reporting and analysis.

The Regional Office will provide technical support to countries in developing and implementing tools and methodologies using eHealth to improve national public health information systems and epidemiological surveillance. It will also encourage countries to use open-source software as a basis for strengthening their HIS.

The Regional Office will also explore the possibility of clinical decision support built into the system, based on regional needs. This could include sign–symptom–disease-management

templates, clinical alerts, drug information systems and diagnosis support systems and order sets. Going forward, the Regional Office will also explore the development of electronic medical/health records and electronic summaries of patient health. The aim of electronic medical/health records is to improve the quality of health care and to reduce medical errors by making current information readily available to physicians.

Objective 2.3 – Advocate eHealth as an effective tool for achieving universal health coverage

Over the last few years, it has become increasingly accepted that the goal of achieving universal access to needed, good-quality health services (promotion, prevention, treatment and rehabilitation) will not be achieved without well-functioning domestic health systems, including HIS. Recent developments in eHealth have demonstrated greater potential to make a breakthrough in addressing the challenges faced in the course of achieving UHC. Telemedicine, one of the areas of eHealth, provides an opportunity for hard-to-reach groups to access the health service and the possibility of providing equal service irrespective of distance. Open-source applications such as DHIS and OpenMRS (26) can be adapted in alignment with the vision of universal health coverage, to help measure the progress and analyse the gap in achieving universal health coverage.

In view of the role of eHealth as a critical enabler in achieving UHC, the Regional Office will advocate Member States to consider eHealth as an enabler to help resolve the challenges faced on the path to UHC. Member States will be encouraged to include eHealth in their plans for UHC, as a key to measuring progress and gaps, and to plan for action in a practical manner.

Objective 2.4 – Promote development of sustainable, scalable and interoperable eHealth programmes for health-service delivery and patient management

There are several initiatives in the countries of the Region that utilize ICT and applications in programmes for public health care. These include telemedicine, telesurgery, telementoring, tele-education for health, electronic medical records, mobile phone-based service tracking, and other projects. There is a need to systematically evaluate such initiatives for potential scale-up. To ensure the sustainability of eHealth programmes in resource-limited settings, cloud or other appropriate computing technology is an optimal solution. There are two options: (i) hosting data on an international cloud with security and privacy standards; or (ii) having a central cloud data centre in the country, managed by competent staff or a reliable and professional organization, according to country context.

International cloud hosting may be the only sustainable option for some countries, and could be feasible after careful consideration of information security.

The Regional Office will develop a framework for promoting and evaluating eHealth initiatives in the Region. These would include establishing a unique patient identifier that is interoperable for medical, social health insurance and other relevant subsystems and the use of standards for medical terminologies as well as for technical standards. Recommendations and guidance will be provided by the office, for best practices for handling personally identifiable information and personal health information, and application of the "International statistical classification of diseases and related health problems, 10th revision" (ICD-10) (27), or subsequent version, in electronic data systems. The Regional Office will encourage countries to use need-based eHealth services to make contact with hard-to-reach and vulnerable groups. It will also encourage countries to undertake public–private partnerships in the area of research and development of ICT to ensure that ethical and patient right issues are particularly important in the area of health service delivery and patient management.

Objective 2.5 – Encourage countries to utilize eHealth applications to strengthen their CRVS systems and set up close collaborations with relevant local agencies to share vital statistics electronically

A CRVS system provides essential data as the basis for measuring the overall health status and progress of a country. Most of the countries in the Region have a CRVS system that involves more than the health sector, and thus linkages between the different sectors need to be established. Vital statistics from civil registration data are used to derive the fundamental demographic and epidemiological measures that are needed in national planning across multiple sectors, such as statistics, planning, education, labour and health. Standard software is available that facilitates analysis of these data for use in public health management.

The use of ICT can help accelerate progress towards complete CRVS systems, to ensure that previously unreached populations are registered and are able to avail themselves of their rights, particularly with regard to access to health services. This helps to achieve the aim of UHC.

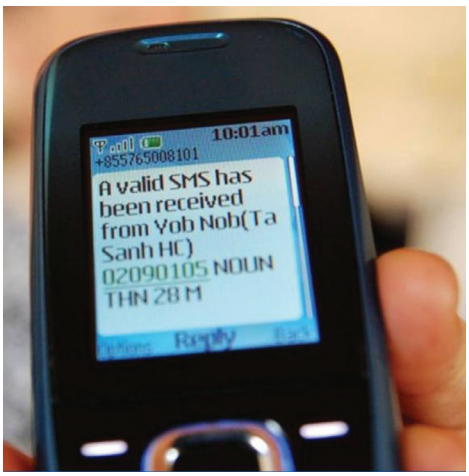
The Regional Office will support countries to integrate CRVS data into e-based HIS and to build capacity for analysing CRVS data based on standards and norms provided in electronic form. To ensure uniqueness and synchronization of CRVS data in individual countries, the Regional Office will support countries to use ICT innovations to establish linkages between data on vital events from multiple sources. It will also support countries in adopting automated verbal autopsy techniques; the use of software for ICD coding of cause of death; as well as the use of ICT for improving the quality and completeness of cause-of-death data nationally and regionally, to ensure documentation of more reliable mortality statistics.

4.3 Strategic area 3:

Collaboration and partnership – Promote and facilitate horizontal cooperation among countries and all key stakeholders for development of the eHealth agenda for the Region

Objective 3.1: Promote intersectoral collaboration, both within each country and among Member States; this includes identification of electronic mechanisms for sharing experiences, best practices and regional resources.

Individual sectors are taking advantage of rapid evolution in the field of ICT and eHealth, which has resulted in the use of different portals and coding systems between private and government sectors and between regions and countries. There is a recognized need for a coordination mechanism to regularize the practice of application of ICT for health. The Regional Office will encourage countries to establish interministerial and intersectoral coordination committees, to advocate a unified government portal and unified coding systems across the country. To achieve this, horizontal cooperation between sectors and ministries will be promoted.



Different sectors and countries have made advances in the best use of such technologies for better health outcomes (28). Lessons learnt in implementing comparable eHealth initiatives need to be shared intersectorally through an institutionalized mechanism. Similar mechanisms also need to be developed for horizontal collaboration among the different countries of the Region. Bottom-to-top data flow also needs to be encouraged, and the use of existing social networks to enable knowledge sharing in health systems can be explored. Another avenue to be explored is community monitoring through OpenData, where the general population can, through the use of ICT, monitor health services that are being provided. The Global Observatory for eHealth (7) has studied the evolution and impact of eHealth around the world and provides a good platform for sharing such information.

The Regional Office will further utilize the good progress achieved by the Global Observatory for eHealth's work, to develop a mechanism for information sharing and dissemination within the region. Additionally, it will encourage United Nations agencies and health sector partners to work together and to build up public–private partnership to take forward the eHealth agenda, and enhance information sharing and coordination among different sectors, for possible synergies.

Objective 3.2: Promote adoption of health data standards and interoperability through engagement of all key stakeholders

With the fast and ad hoc growth of eHealth applications in different health programmes, it is vital to adopt data standards for health information exchange and interoperability. The biggest challenge in adoption of health data standards is lack of collaboration between the business owners of currently existing eHealth applications and the stakeholders. For health data standards and interoperability standards to be adopted in a way that is meaningful and beyond just rhetoric, engagement of all key stakeholders is essential. The critical success factor depends on people and organizations working together. The technologies for data standards for health information exchange and interoperability are now easily available and achieving consensus on what standards to adopt depends on collaboration and engagement between stakeholders.

A unified coding system is promoted to ensure interoperability among different sectors. This will ensure that population-based and patient-based data in the public and private sectors can be synchronized for optimal use. Vertical silos that exist within the national eHealth architecture need to be interoperable with each other. It is equally important that the health data standards are accepted and adopted by concerned stakeholders, both nationally and internationally.

The Regional Office will support countries and partners in advocacy efforts and provide the reference of common health data standards, interoperability and health information exchange. It will also facilitate resource mobilization, for the additional resources required to adopt such standards at the regional and country levels.

The Regional Office will support countries to:

- work with stakeholders to develop a roadmap for adoption of health data standards;
- develop appropriate policy and strategies to strengthen country capacity for adoption of standards by the health sector;
- provide guidance and support for common terminology services across regions and sectors;
- coordinate resource mobilization, in order to prevent duplication of projects and donor-driven initiatives;
- convene multisectoral engagement to provide technical assistance to countries in developing their national eHealth architecture and strengthen their health information systems, based on adoption of health data standards.

Objective 3.3: Encourage countries to adopt a suitable legal and regulatory framework that supports the use of ICT in the health sector

The growing use of ICT in the health sector has highlighted the need for an appropriate legal and regulatory framework at national and international levels. This framework will facilitate the electronic sharing of clinical information at the national and regional levels, and ensure the privacy and confidentiality of personal medical/health data. This legal and regulatory framework will promote the validity of telemedicine activities and safeguard medical/health professionals, as well as the individual's right to confidentiality and privacy. Collaboration and cooperation with relevant stakeholders and partners is required for formulation of a legal and regulatory framework. Moreover, for the enforcement of legal and regulatory frameworks, collaboration between stakeholders is quintessential. Legal frameworks that are not enforced become obsolete, thus stakeholder collaboration to enable enforcement is a critical component to ensure the legislative machinery is well-functioning.

The Regional Office will prepare an inventory of relevant laws and legal frameworks in countries globally and share this with countries in SEAR, for potential adaptation to their country context. While respecting the privacy and confidentiality of personal health records, the Regional Office will support the use of appropriate technology and management mechanisms (in rules and standard operating procedures) that facilitate responsible sharing of data on a need-to-know basis, and ensure the confidentiality and privacy of the individual client's recorded data at all times. It will encourage countries to involve partners and stakeholders in the development of a contemporarily relevant legal and regulatory framework, so that their roles in implementation of their eHealth programme are clearly defined, synergized and legally acceptable. The Regional Office will also support countries to create rules and standard operating procedures regarding access to this information, and a mechanism for monitoring strict adherence to prevent and detect violations, and set sanctions to be imposed in the event of violation, of these rules and procedures.

4.4 Strategic area 4:

Human resource development – Promote knowledge management, education in ICT and better access to information as a key element for health promotion and health care

Objective 4.1 – Promote training in ICT in medical schools/universities and among the health workforce

In low- and middle-income countries, the number of health professionals is traditionally limited, and they are not always trained in the use of ICT for health. Despite rapid development in eHealth-related technologies and applications, there are still constraints in updating medical curricula, and a lack of resources.

The Regional Office will provide technical assistance to Member States in promoting training in ICT in medical schools/universities, and collaborate with Member States in development of ICT curricula and courses for medical schools/universities. Member States will also be encouraged to apply ICT interventions in delivering the medical curriculum.

The Regional Office will encourage countries to engage with professional associations and bodies of medical and health personnel, to develop eHealth-related training as part of continuing medical education (CME). It will also facilitate access to and use of a HINARI/HeLLIS-like eDatabase by medical and health professionals in the countries of the Region. It will also build a regional knowledge base of Member States' eHealth experiences, successes and failures and share this information among the Member States.

Objective 4.2 – Ensure updating of the knowledge base and continuous education of health-care providers through eLearning

eLearning provides distance education and training to the health workforce using the Internet and other communication technology. Full or limited access to teaching modules and course materials is available on the Internet for audiences worldwide. eLearning is increasingly being used for CME, to improve the skills and knowledge of health-care workers.

The Regional Office will encourage countries to undertake intensive measures to utilize eLearning platforms. Through networks with collaborating partners and the health professional community, it will facilitate the development and adoption of common standards and web-based free and open source eLearning platforms for Member States, for ease of sharing and interoperability of the knowledge base. Proactive participation of the health professional community and provision of a discussion forum to exchange or share experiences will be encouraged, to enrich the knowledge base and optimize utilization of the eLearning platform. To this end, mobile applications will be advocated for health professionals to gain access to this platform without being constrained by time and distance.

The Regional Office will collaborate with the medical and educational institutes to develop multimedia/animated modules for continuous education of health-care workers and medical students.

Objective 4.3 – Utilize eHealth to provide reliable, quality information on health education and promotion, and disease prevention, to the mass population

ICT offers tremendous opportunity to innovate and scale up ways of developing and disseminating quality information on health education for the mass population. The use of social media, Internet and mobile phone technology offers a wide avenue for the community to participate in creation of and access to health-education messages. This will increase

awareness of health issues and actions to be taken for prevention and promotion, free from the conceptualization of a public-health education message.

The Regional Office will assist countries to develop and strengthen the broader use of ICT in existing information, education and communication mechanisms and programmes at different levels. It will also encourage countries to develop/strengthen virtual public health libraries, with open access to all and continuous updating of health websites. Special emphasis will be placed on important messages relating to different types of public health programmes, which should be made available in local language at home, school and the workplace, through appropriate use of ICT and further emphasis on mobile phone technology.

Objective 4.4 – Promote research using eHealth tools

There is a need for generation of research-based evidence in the area of eHealth. Research institutions, collaborating centres and individual researchers need to be engaged to undertake studies on issues related to the application of eHealth tools and methods. Though the consensus is growing that eHealth can improve clinical care in low and middle-income countries, more information is needed on its economic benefits and impact on patient health. The Regional Office will provide technical assistance to countries to conduct in-depth assessment of eHealth readiness and opportunities among the Member States, and convene partnerships with research institutes and universities to conduct research on eHealth tools. It will facilitate mechanisms for the transmission of results of research studies, to help validate the impact of eHealth on patient health, through establishment of networking between research institutes, education institutes and hospitals. It will also promote research using eHealth tools and explore awards to appraise the best research. In addition, it will support collaboration with international journals, in order to provide health professionals with access to the appropriate forums to discuss innovations in eHealth with researchers around the globe. Furthermore, development of common platforms should be pursued to secure data-sharing in an ethical manner, and capacity-building of ethical review committees should be supported to improve the quality of review of research proposals involving eHealth.

Objective 4.5 – Facilitate the dissemination, communication and widespread distribution of health information, with emphasis on emergencies, through social networks including mobile technologies

ICT provides a very good platform for emergency preparedness and response activities (25). It should be an integral part of national plans for disaster/emergency preparedness, including social mobilization, networking and training volunteers, and quick access to

key information. Proper set up of a geographical information system facilitates location of the nearest and/or fastest-to-reach health facilities, and captures detailed information about population, health-care facilities and health-care workers in the targeted region or a nearby region, and how to mobilize these resources in response to an emergency situation.

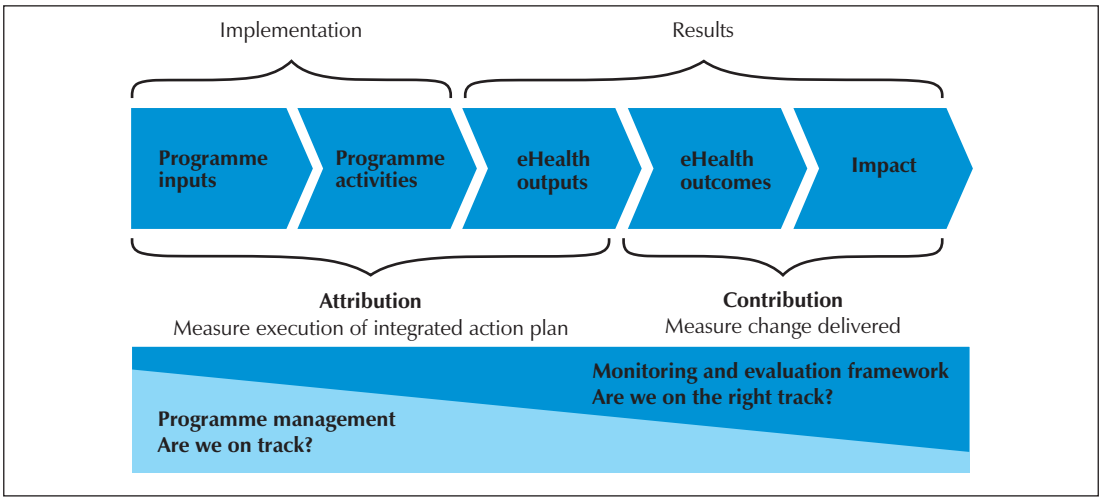
The Regional Office will work with partners and concerned United Nations agencies to integrate eHealth and ICT in the overall emergency preparedness and response framework. Countries and agencies will be encouraged to allocate adequate resources to develop and implement eHealth applications for use, such as SMS alert to provide necessary information to the public in a specific area, for health issues during an emergency. It will provide technical assistance to Member States to develop communications and distribute health information using all possible eHealth technologies, including social networks and particularly mobile technologies. Telemedicine in particular, and eHealth initiatives in general, have been known to play a key role in coordinating and assisting relief and rescue efforts. It will also facilitate improvement in coordination between Member States and between departments within each Member State, using appropriate ICT tools, especially during emergencies.

5. Monitoring and evaluation

Monitoring and evaluation play an essential role in demonstrating the progress that the Region is making towards the development of its regional eHealth environment, and the results or change that these efforts are delivering. The output of monitoring and evaluation forms a critical part of ongoing communication regarding a particular country's national eHealth programme, as well as regional eHealth programmes, which in turn is essential for building the support of stakeholders for further adoption and investment in eHealth.

A framework for monitoring and evaluation enables tracking and assessment of the results of implementing the eHealth strategy. "Result-based management" is the management strategy used by the United Nations (see Figure 1) and will be adopted in the monitoring and evaluation framework for the regional eHealth strategy. The approaches for monitoring and evaluation will focus on performance and achievement of outputs, outcomes and impacts. A clear distinction will be made between a monitoring and evaluation framework for a regional eHealth strategy and the programme management activities that are designed to implement and manage a large-scale eHealth action plan.

Figure 1: Result-based management



The regional eHealth monitoring and evaluation framework will mainly be composed of indicators for monitoring and evaluating baseline and target measures for indicators, and for governance and process. Indicators for monitoring and evaluation will be defined by their level of association and contribution to health system strengthening in the Region, and the perspective of individual implementers (e.g. stakeholders and partners) of the eHealth strategy. Indicators will be developed and selected according to an understanding of eHealth outcomes and outputs that are important to regional health system development.

Monitoring the progress of the action plan requires an understanding of where the Region is starting from (baseline measures) and what it is expecting to achieve (target measures). Therefore, the baseline and target will be defined for a range of time frames throughout the duration of the action plan.

Governance provides oversight, coordination and guidance for monitoring and evaluation efforts, and ensures timely intervention when there appears to be divergence between what is actually happening and what the Region was aiming to achieve through its eHealth programme. The regional countries and partners will be consulted throughout the process, in order to gain commitment and understanding, as well as to ensure that the roles of individuals are considered in the governance structure and process.

ICT interventions for the health sector cannot all be realized in a short time; they can be divided into three categories:

(1) build on what exists, as an immediate response;

(2) extend what exists, as a medium-term response;

(3) work for what requires future extensive planning, as a long-term response.

This strategy should be taken as a direction on which to base the mapping out of the biennial workplan for the Region. Prioritization of the above-mentioned categories will be done through meticulous study of the different stages of ICT application in each country of the Region.

The plan of action will contribute to the achievement of WHO's strategic objectives. The Region-wide expected results will be based upon the strategic objectives detailed in this strategy.

After due consultations with the Member States of the Region and other stakeholders and partners, a detailed plan of implementation, with monitoring indicators, will be developed.

The monitoring and evaluation of the plan will be undertaken in alignment with WHO's results-based management framework, as well as its performance monitoring and evaluation processes. Following the definition of indicators for output and outcome levels, baseline measures will be adopted from the data that are already available, and information from the Global Observatory for eHealth (7), and progress will be measured accordingly.

Progress reports will be issued based on the information available at the end of each biennium.

A mid-term evaluation will be conducted after the third year (end of 2016) of implementation of the strategy, to identify the strengths and weaknesses in its overall execution, as well as the causative factors in its successes and failures, along with future actions. The results of the evaluation will be shared and discussed at the regional and national level, for fine-tuning the implementation process.

At the end of the strategy period in 2020, an end-term evaluation will be undertaken. Based on its result, the regional advisory committee for eHealth will consider extension, revision and/or update of the current strategy.

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Annex 1

Resolution WHA58.28
eHealth

Resolution WHA58.28 on eHealth (4), adopted at the Fifty-eighth World Health Assembly in May 2005, urges Member States to:

(1) draw up long-term strategic plans for developing and implementing ehealth services that includes an appropriate legal framework and infrastructure and encourages public and private partnerships;

(2) develop the infrastructure for ICT for health as deemed appropriate to promote equitable, affordable and universal access to their benefits, and to continue to work with information telecommunication agencies and other partners to strive to reduce costs to make eHealth successful;

(3) strive for closer collaboration with the private and non-profit sectors in ICT, in order to further public services for health;

(4) endeavour to reach communities, including vulnerable groups, with eHealth services appropriate to their needs;

(5) mobilize multisectoral collaboration for determining evidence-based eHealth standards and norms;

(6) evaluate eHealth activities, and to share the knowledge of cost-effective models, thus ensuring quality, safety and ethical standards;

(7) establish national centres and networks of excellence for eHealth best practice, policy coordination and technical support for health-care delivery, service improvement, information to citizens, capacity-building and surveillance;

(8) consider establishing and implementing national public health information systems;

(9) improve, by means of information, the capacity for the surveillance of, and rapid response to, disease and public health emergencies.

In order to support the Member States to carry on the above-mentioned tasks, WHO approved in the 117th Session of the Executive Board in January 2006, the eight eHealth priority action areas, which are composed of three initial application areas of ICT.

Application areas of ICT

(1) *ICT in support of human resources for health* – the regional countries experience health workforce shortage and imbalance in the set of skills required for providing high-quality health services. Brain drain in countries exacerbates the shortage of health workforce and poor quality of service in the remote areas. ICT can significantly improve the way health-care professionals are trained through

targeted eLearning programmes, and can improve the efficiency of health services, especially in areas with a small health workforce.

(2) *ICT for health education and promotion* – the spread of ICT, including the Internet and mobile telephones, provides an opportunity to reach the public at home, school and the workplace. These technologies can be used to provide health education and promotion, monitor chronic conditions and deliver information on demand.

(3) *ICT for health services* – ICT application in the health sector should satisfy the minimum requirement of quality and safety of, and access to, health care. In this domain, use of ICT in the health system is accentuated to ensure responsible use of the technical, human and financial resources required at the operational, managerial and political levels of the health system.

Annex 2

Outline of the vision, mission, goal and strategic objectives of the Regional Strategy for Strengthening eHealth in the South-East Asia Region of WHO

Vision
By 2020, affordable, appropriate and sustainable eHealth is established as one of the foundations of health systems in achieving the desired health outcomes in the South East Asia Region

Mission
From 2014 to 2020, assist and collaborate with Member States in their efforts to establish eHealth as an integral part of the transformation, responsiveness and improvement of health systems, for equity and equality in the preventive, promotive, curative, rehabilitative and palliative health care to all of their populations, in an effective, efficient and responsible manner

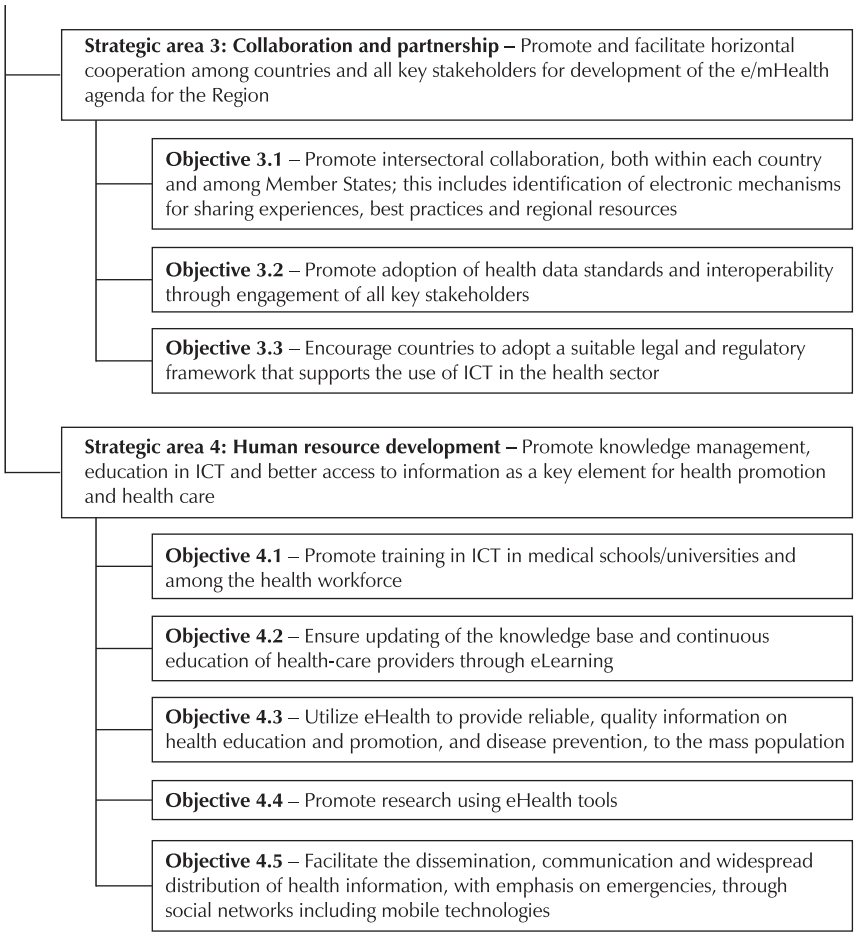
Goal
To provide harmonized and comprehensive eHealth strategic framework and provide support to Member States in implementing the strategic framework by 2020

Strategic area 1: Policy and strategy – Promote and support the formulation, execution and evaluation of effective, comprehensive and sustainable public policies and strategies on the implementation of eHealth through shared responsibility of health and allied sectors

- **Objective 1.1** – Support the formulation and adoption of people-centred eHealth policies and strategies and their implementation
- **Objective 1.2** – Encourage Member States to set eHealth as a political priority at the national and regional levels
- **Objective 1.3** – Support the establishment of a regional and national intra/inter sectoral networks (public, private, civil society and others) to participate in the formulation and execution of eHealth policies and strategies
- **Objective 1.4** – Establish a system for periodic assessment of the regional/national eHealth policies, strategies and progress of implementation

Strategic Area 2: Tools and methods – Improve public health through the use of tools and methodologies based on innovative ICT

- **Objective 2.1** – Improve organizational and technological infrastructure for eHealth
- **Objective 2.2** – Promote the use of ICT for strengthening national health information systems, including epidemiological surveillance systems, drug and logistics management systems, financial systems and electronic health records
- **Objective 2.3** – Recognize eHealth as an effective tool for achieving universal health coverage
- **Objective 2.4** – Promote development of sustainable, scalable and interoperable eHealth programmes for health-service delivery and patient management
- **Objective 2.5** – Encourage countries to utilize eHealth applications to strengthen their CRVS systems and set up close collaborations with relevant local agencies to share vital statistics electronically


Strategic area 3: Collaboration and partnership – Promote and facilitate horizontal cooperation among countries and all key stakeholders for development of the e/mHealth agenda for the Region
Objective 3.1 – Promote intersectoral collaboration, both within each country and among Member States; this includes identification of electronic mechanisms for sharing experiences, best practices and regional resources
Objective 3.2 – Promote adoption of health data standards and interoperability through engagement of all key stakeholders
Objective 3.3 – Encourage countries to adopt a suitable legal and regulatory framework that supports the use of ICT in the health sector
Strategic area 4: Human resource development – Promote knowledge management, education in ICT and better access to information as a key element for health promotion and health care
Objective 4.1 – Promote training in ICT in medical schools/universities and among the health workforce
Objective 4.2 – Ensure updating of the knowledge base and continuous education of health-care providers through eLearning
Objective 4.3 – Utilize eHealth to provide reliable, quality information on health education and promotion, and disease prevention, to the mass population
Objective 4.4 – Promote research using eHealth tools
Objective 4.5 – Facilitate the dissemination, communication and widespread distribution of health information, with emphasis on emergencies, through social networks including mobile technologies

Bangkok Declaration
on eHealth

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Minister Ministry of Health
Kawajangsa

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His Excellency Thoriq Ali Luthufi
Minister of State for Health
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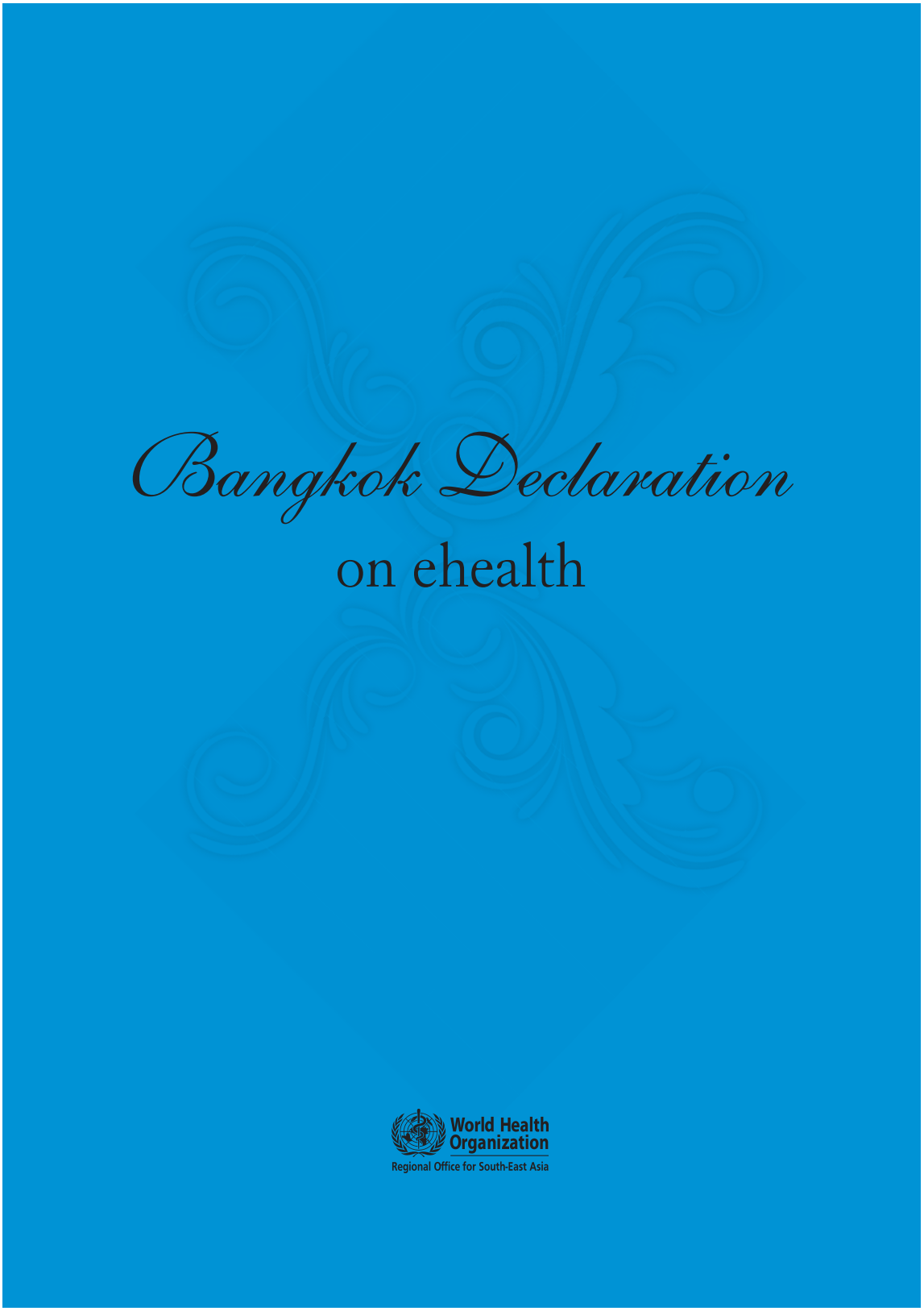
Annex 3

Bangkok Declaration on eHealth



We, the Health Ministers of Member States of the WHO South-East Asia Region, participating in the Regional High-Level Meeting on eHealth held in Bangkok, Thailand, on 18 November 2013;

Appreciating the efforts being made by Member States and partners in the South-East Asia Region for the appropriate use of information and communication technologies (ICT) for health sector development;

Noting that eHealth is a broad domain covering all use of ICT innovations for health, while mHealth refers to use of mobile devices or mobile technology for health which is a component of eHealth;

Recognizing that the availability of improved technologies of eHealth including mHealth can rapidly transform the delivery of health-care services and systems;

Noting that eHealth has great potential to strengthen health systems in addressing the health needs of the people of the Region when incorporated appropriately and optimally;

Recognizing that the effort to apply ICT innovations for health sector development requires an integrated strategy and coordination that addresses multiple factors, such as, technology and data standardization, inter operability and avoidance of duplication, as far as possible, between various stakeholders and partners through shared engagement;

Conscious that appropriate and optimum use of ICT in the health sector can support universal health coverage by providing greater access to quality health services, in reaching the unreached and in strengthening data systems to support better health financing;

Envisioning that eHealth facilitates achievement of goals set by health-related programmes such as civil registration and vital statistics (CRVS), maternal and child health, and emergency response and preparedness;

Acknowledging that information systems incorporated with eHealth can streamline health-sector management with better planning, monitoring and reviewing on the basis of evidence;

Considering that dissemination of health-related information via eHealth with a regulatory mechanism can enable attainment of a high-level of health literacy and empower the general population to take control of their health;

Cognizant that cost-effective tools and technologies are available that can further optimize health sector and country resources in implementing eHealth;

Mindful of the existence of mutual interests and challenges among countries of South-East Asia, and of the need to further strengthen regional solidarity and cooperation in health informatics and ICT sectors;

Desiring establishment of a regional platform to promote further application of ICT for improving the health of the people and thus contributing to the social and economic development of the Region;

We, the Health Ministers of Member States of the South-East Asia Region, hereby commit to:

1. accord high priority to improve health information systems by incorporating eHealth for national development and prosperity;
2. establish a national eHealth oversight committee comprising key multi sectoral stakeholders, including civil society organizations as appropriate, and chaired by a high-level representative from the ministry of health and co-chaired by a counterpart from the allied ministries;
3. formulate national eHealth policies, strategies and plans jointly with all relevant stakeholders in response to national health sector development plans and other health-related strategies,

and consolidate partnership with the telecommunication sector as well as implement jointly as shared responsibility between various stakeholders with a view to improve coordination and address factors such as technology and data standardization, inter operability and avoidance of duplication, as far as possible.

4. ensuresafety, privacy and confidentiality of care recipients in all efforts to incorporate ICT into the health-care system;
5. build close partnerships between the telecommunication and health sectors through joint planning and implemention of an eHealth strategic plan;
6. utilize eHealth to enhance priority health areas of the respective country (such as CRVS, maternal and child health and noncommunicable and communicable diseases) in alignment with integration of health information systems and health service delivery systems;
7. apply an incremental approach to expand eHealth services taking into consideration availability of resources, readiness of health systems, affordability, sustainability and acceptability of technologies;
8. collaborate with law-making and regulatory bodies of our countries and medical institutes to adopt appropriate ethical, legal and regulatory framework to safeguard the rights of individuals and health-care professionals by ensuring privacy and confidentiality of electronic health data;
9. collaborate with relevant bodies to build up mechanisms and implement technology to ensure the security of the information systems and the data;
10. intensify horizontal collaboration between the ministries of health of the countries of the Region, and eHealth research institutes of global and regional excellence to adopt data standards and data exchange standards to ensure interoperability and integration of health information systems;
11. broaden participation of private sector in implementing national eHealth strategies within a framework of public private partnership and integration of health information system;
12. review curricula of medical schools and develop a health informatics curriculum and course for medical schools and universities to promote information science and ICT education among health professionals;
13. support an appropriate mechanism for sharing experiences, best practices and regional resources including expertise to facilitate horizontal cooperation between countries to support eHealth development in the Region;
14. create an electronic educational network for health professionals to expand their knowledge on ICT and its application in the health-care sector and to build national capacity in eHealth strategies, and capacity-building of ICT human resources to ensure management and sustainability of eHealth systems;
15. provide adequate and sustained resources through domestic and external channels, and explore innovative financing mechanisms for implementation of eHealth as part of efforts to achieve universal health coverage;

We, the health ministers of Member States of WHO South-East Asia Region, request the Regional Director and the Director-General to continue to provide leadership and support to Member States in strengthening eHealth strategies and facilitate in building partnerships between governments, development partners, academia, professional bodies, ICT sector, nongovernmental organizations, the media and civil society, to jointly advocate and execute this Bangkok Declaration on eHealth.

Bangkok, 18 November 2013

The WHO Regional Office for South-East Asia has prepared a “Regional Strategy for Strengthening eHealth in the South-East Asia Region, 2014–2020” with a vision that is affordable, appropriate and sustainable eHealth is established as one of the foundations of health systems in achieving the desired health outcomes in the SEA R.

The Regional eHealth Strategy and the Bangkok Declaration were endorsed and signed by the SEAR Member States during a Regional High-Level Meeting on e/mHealth held in Bangkok, Thailand, during 17–19 November 2013. The Honourable Ministers and country delegates signed the final draft of these documents for galvanizing political will to prioritize eHealth in increasing health outcomes for the country's citizens. The goal is to provide a harmonized and comprehensive eHealth strategic framework and technical support to the Member States in implementing the strategic framework by 2020.

It was agreed that the strategy would focus on the following four key areas:

- **Strategy Area 1: Policy and strategy**

  Promote and support the formulation, execution and evaluation of effective, comprehensive and sustainable public policies and strategies on the implementation of eHealth through shared responsibility of health and allied sectors.

- **Strategic Area 2: Tools and methods**

  Improve public health through the use of tools and methodologies based on innovative ICT.

- **Strategic Area 3: Collaboration and partnership**

  Promote and facilitate horizontal cooperation among countries and all key stakeholders for development of the e/mHealth agenda for the Region.

- **Strategic Area 4: Human resource development**

  Promote knowledge management, education in ICT and better access to information as a key element for health promotion and health care.

The WHO Regional Office would need to mobilize support from partners in order to implement the work committed in the strategy. The strategy is aimed at policy makers and Health Professionals in the area of eHealth and health informatics.

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