

eHealth Roadmap



Ministry of Health and Population

Kathmandu, Nepal

2076

Preface

The impact of rapidly growing information and communication technology is very high in our socio-economic life that has become integral part of our routine works. It has been equally putting pressure in governance to be transformed from traditional to the techno-friendly and adoptive. eHealth is perceived as inevitable tool for making health care more effective and efficient. It is sharply reducing time, distance, cost and efforts both for service provider and recipient yielding high degree of social and economic benefits.

It is my great pleasure to introduce eHealth roadmap which is set of planned activities and programs pursuing eHealth strategy of Ministry of Health and Population. eHealth roadmap demands leadership and governance, capacity and standards and wise investment to stand upon. The advantages are ranging from good governance, improved and efficient human resources, better information systems, public Health Surveillance and health vigilance, improved logistics management supply chain and effective health education to the efficient service delivery. People massed around digital solutions points the acceptability and adoptability of the digital interventions.

Our best efforts to achieve sustainable development goals; particularly the universal health coverage can be supported greatly through digital intervention by bringing people nearer to the health services and overcoming geographical and financial barriers. These technologies will enable us to identify the people leaving behind and provide solutions to reach them for health care. The appropriate use of digital technologies demands higher level of awareness and understanding of their applicability and use, together with commitments from governments, organizations and people in general.

I would like to urge governments, external development partners, innovators, business houses, social organizations, researchers, media and stakeholders to put big effort on innovations, development and scale up of eHealth services in Nepal.

Finally, I am thankful to MoHP officials, eHealth team, WHO, GIZ, NHSSP and all the contributors who put hard efforts and worked restlessly to bring the roadmap in this shape. I urge all the stakeholders of eHealth to provide best support to implement the roadmap successfully for improved health system and better health of the people.

Dr. Pushpa Chaudhary

Secretary

Background

e-Health is the cost-effective and secure use of information and communications technologies in support of health and health-related fields, including health-care services, health surveillance, health literature, and health education, knowledge and research.

eHealth formally conceptualized after World Health Assembly (WHA) resolution 2005 introduced it as an indispensable tool for improving health system. Some interventions in this regard observed but many challenges and issues emerged due to sub-standard, non-harmonized and fragmented products emerged. WHA resolution 2013 reinforced the need of standards and inter-operability in the eHealth programs. Following series of discussions and situation analysis Ministry of Health proceeded with developing eHealth strategy and came up with eHealth Strategy 2017.

The eHealth strategy is built upon three strategic pillars; Governance and foundation, Change and adoption (human resource and capacity) and Solutions (services and applications).

The goal of the National e-Health Strategy is to harness the potential of ICT technologies to improve health services, health governance and management. It has envisioned to achieve six outcomes at four clusters of beneficiaries; Population at large, health clients, health workers, and public health managers and decision makers. The outcomes are as follows;

Population

Outcome 1. Facilitate promotion of healthy life styles, protection from diseases, reducing risk behaviours

Outcome 2. Deliver risk alerts for public health outbreaks and emergencies

Health Clients (Service Seekers)

Outcome 3. Improved availability and access of general and specialized healthcare services

Outcome 4. Increased compliance, adherence and satisfaction toward health services whilst increasing individual responsibilities for personal health

Health Workers

Outcome 5. Improved enabling environment and capacity for the delivery of safe and effective health services

Public Health Managers and Decision Makers

Outcome 6. Enhanced access to data and information for effective planning, management, governance and evidence based decision making

The roadmap is developed to define the activities and structural and functional procedures needed to achieve the outcomes. The need for roadmap was identified and consensus made following the convergence workshop conducted by MoH held on August 2017. It is developed in participatory process through the workshops and series of expert group meetings. This roadmap is structured with background information, activities and milestones and implementation process.

Objectives

The broad objective of this roadmap is to define the activities and programs needed to achieve the outcomes of eHealth strategy. Specific objectives are to;

- Identify the activities for eHealth strategy implementation
- Bring together stakeholders for consensus
- Set the priority of the activities and landmark
- Suggest the appropriate institutional setting
- Predict the resources to extent
- Identify the implementing agencies

Activities and Milestones

The activities are set keeping in centre the beneficiaries targeted and pillars identified in the eHealth strategy. These activities are prioritized on the basis of sequencing and compliance to infrastructural development. Activities are also perceived as inter-linked flexible with changes in technology and health priority. Current priorities are supporting to Universal Health Coverage, Sustainable Development Goals, Primary Health Care and Nepal Health Sector Strategy. Further, it will align with Digital Nepal Framework, Global Health Strategy and National Health Policy.

Nepal eHealth Strategy Implementation Roadmap

Vision	e-Health facilitates the delivery of equitable and high-quality health care services to enable all Nepali citizens to enjoy productive and quality lives
Mission	e-Health interventions strengthen Nepal's health systems by improving the use tools, information and evidence in planning, managing and supporting public health and clinical interventions and service delivery.
Overall Goal	The goal of the National e-Health Strategy is to harness the potential of ICT technologies to improve health services, health governance and management

1. Population

Outcomes & Strategic Interventions	Key Activities	Timeline					Output Indicators	Means of Verification	Responsible Entities	Resources required (000 NRs)
		2017	2018	2019	2020	2021				
		20	20	20	20	20				
		7	7	7	7	8				
		6	7	8	9	0				
		/	/	/	/	/				
		7	7	7	8	8				
		7	8	9	0	1				
Outcome 1: Facilitate promotion of healthy life styles, protection from diseases, reducing risk behaviors										
Governance and	Intervention 1.1: Collaboration with Community e- Centres (CeC) to deliver health messages and information to the communities									

1. Population										
Outcomes & Strategic Interventions	Key Activities	Timeline					Output Indicators	Means of Verification	Responsible Entities	Resources required (000 NRs)
		2016/17	2017/18	2018/19	2019/20	2020/21				
foundation	1.1.1 Develop inventory of CeCs by functioning situation	X					Inventory of functional CeCs developed	Inventory report of CeCs	IT, MoHP	500
	1.1.2 Develop the guideline, protocol and terms and conditions for CeCs to deliver public health messages	X	X	X			% of CeCs oriented	Capacity building report	IT-MoHP, NHEICC	1000
	1.1.3 Review Meetings bi-annually	X	X	X	X		% of meetings conducted against target	Meeting minutes	IT-MoHP	1000
	Intervention 1.2: Collaboration with related stakeholders to increase internet, mobile and mass media network coverage									
	1.2.1 Advocacy for internet and mobile coverage in all	X	X				Number of advocacy	Meeting minutes	IT-MoHP	250

1. Population

Outcomes & Strategic Interventions	Key Activities	Timeline					Output Indicators	Means of Verification	Responsible Entities	Resources required (000 NRs)
		2007	2007	2008	2009	2010				
	health facilities						meetings			
	1.2.2 Internet service installation in all HFs	X	X				% of HFs with internet services	HF profile, NHFS	MD	160000
	1.2.3 Incorporate internet service and LAN in HF construction and operation related guideline	X					HF construction guideline revised	Revised HF construction guideline	IT-MoHP	500
	1.2.4 Advocacy to provincial and 753 local governments for AWPB with eHealth activities	X	X				No. of meetings conducted	Meeting minute	HCD/PPM, IT-MoHP	1400
	1.2.5 Collaboration and coordination meeting with Internet Service Providers (ISPs)	X	X				No. of meetings conducted	Meeting minute	IT-MoHP	100

1. Population

Outcomes & Strategic Interventions	Key Activities	Timeline					Output Indicators	Means of Verification	Responsible Entities	Resources required (000 NRs)
		2017	2018	2019	2020	2021				
		0	7	8	9	0				
Change and adoption (HR and capacity, architecture, programme management, and standards and interoperability)	Intervention 1.3: Increase public awareness regarding availability of eHealth solutions and services to promote its use									
	1.3.1 Develop online training module and Orient all CeCs through health unit of local levels to deliver public health messages	X	X	X			% of CECs oriented	online training module, Training report	IT-MoHP	1500
	1.3.2 Establish and operate digital display/wifi based client terminal like mobile display in all HFs through local levels	X	X	X	X	x	No. of display boards established, No of wifi based display established	HF profile, NHFS, inventory of all kinds of displays	IT-MoHP, NHEICC/MoSD	225000
	1.3.3 Mass media promotion	X	X	X	X	X	No. of	Event report	IT-MoHP,	2000

1. Population

Outcomes & Strategic Interventions	Key Activities	Timeline					Output Indicators	Means of Verification	Responsible Entities	Resources required (000 NRs)
		2017	2018	2019	2020	2021				
		7	7	7	8	8				
		2017	2018	2019	2020	2021				
		7	7	7	8	8				
		7	7	7	8	8				
		7	8	9	0	1				
Solutions (services and applications)	Intervention 1.5: Develop and deliver mobile, web and social media based health message and information applications									
	1.5.1 Form an e-Messages Approval Team at all levels and operationalize	X	X	X	X	X	Team formation	Team formation document	NHEICC	1000
	1.5.2 Review, Revisit and develop multi-linguistic health messages		X	X	X	X	Number of messages approved	Health message list	NHEICC/ MoSD	800
	1.5.3 Form co-ordination committees at all levels for social media promotion and regulation for health message delivery	X	X				Number of co-ordination committees at all levels	Committee formation report	IT-MoHP, NHEICC/ MoSD	800
	Intervention 1.6: Develop a national web-portal to avail all information through one point of access									

1. Population										
Outcomes & Strategic Interventions	Key Activities	Timeline					Output Indicators	Means of Verification	Responsible Entities	Resources required (000 NRs)
		2007	2007	2008	2008	2009				
		2007	2007	2008	2008	2009				
		7	7	8	7	9				
		6	7	8	9	0				
		/	/	/	/	/				
		7	7	7	8	8				
		7	8	9	0	1				
	1.6.1 Develop message repository(message bank) in theMoHP server	X	X				Repository server established	Physical server, repository capacity	IT-MoHP	1300
	1.6.2 Develop GIS based information portal with unified coded and geo-referenced HFs list for interoperability	X	X				% of HFs with geo-referenced HFs	HF registry	IT-MoHP /MoSD	2000
	1.6.3 Develop national and provincialhealth web portal	X	X				Web portal developed	Health Web Portal verification report	IT-MoHP, DoIT, MoSD, Health Coordination Div	2000

1. Population										
Outcomes & Strategic Interventions	Key Activities	Timeline					Output Indicators	Means of Verification	Responsible Entities	Resources required (000 NRs)
		2017	2017	2018	2018	2019				
		2017	2017	2018	2018	2019				
		0	0	0	0	0				
		7	7	7	7	8				
		6	7	8	9	0				
		/	/	/	/	/				
		7	7	7	8	8				
		7	8	9	0	1				
Intervention 1.7: Operate health hotlines to improve awareness and knowledge of the population in contemporary health issues (toll-free)										
	1.7.1 Assign a team of health workers for health hotline and media response at federal and provincial levels		X	X			Number of Response Team formed	Response report document	MoHP/MoSD	200
	1.7.2 Develop a grievance redress portal and mechanism at national and provincial levels	X	X				% of queries responded and grievances redressed	Query and grievance register	MoHP/MoSD	300
Outcome 2: Deliver risk alerts and response for disease outbreaks and public health emergencies										
Governance and	Intervention 2.1: Develop and implement standard protocol/guidelines and standards for delivering risk alerts									

1. Population										
Outcomes & Strategic Interventions	Key Activities	Timeline					Output Indicators	Means of Verification	Responsible Entities	Resources required (000 NRs)
		2017	2018	2019	2020	2021				
foundation										
	2.1.1 Develop guideline and protocol for emergency health message and alert delivery in public using IT media		X				Guideline developed for health message delivery in emergency and alerts	Guideline	IT-MoHP, EDCD	600
	2.1.2 Develop an outbreak and health emergency corner in health web portal with all the guidelines and protocols		X				Outbreak and health emergency corner	Health emergency web report	IT-MoHP	500
	2.1.3 Develop set of alert messages by category of emergencies		X				No. of message developed	Message list	EDCD/N HEICC	800
	2.1.4 Develop auto delivery mechanism using SMS, social media and other IT tools by geography and risk type		X				Coverage of in-risk population	Message delivery report	IT-MoHP, EDCD/N HEICC/H EOC	1000

1. Population										
Outcomes & Strategic Interventions	Key Activities	Timeline					Output Indicators	Means of Verification	Responsible Entities	Resources required (000 NRs)
		2017	2017	2018	2018	2019				
	2.1.5 Integrate health alert system with disaster alert system of GoN		X				Co-ordination mechanism established	Assessment report	MoHA/IT-MoHP/H EDMU	500
	2.1.6 Develop health vulnerability maps and post on the web	X	X				Vulnerability Maps developed	Atlas of vulnerability mapping	IT-MoHP/H EDMU/IC IMOD	1500
	2.1.7 Integrate RRT report and health emergency surveillance systems to health emergency portal	X	X				No. of reports collected	Dashboard	IT-MoHP, /EDCD/MoHA	700
Change and	<i>Intervention 2.2: Strengthen capacity to identify and develop risk alerts and response</i>									

1. Population										
Outcomes & Strategic Interventions	Key Activities	Timeline					Output Indicators	Means of Verification	Responsible Entities	Resources required (000 NRs)
		2017	2018	2019	2020	2021				
Solutions (services and applications)	<i>Intervention 2.3: Develop, implement and strengthen real-time surveillance and disease modelling based on the data from different sources – HMIS, EWARS, DSS etc.</i>									
	2.3.1 Establish IHR compliant screening and information centres in border entry points and maintain database		X	X			Screening data available	Entry point database	IT-MoHP, EDCD	2000
	2.3.2 Mobile based application development for RRT, EWARS and referral management		X				Application developed	Mobile application	IT-MoHP, EDCD	
	2.3.3 Integrate routine health information systems to identify and sense public health emergencies		X	X			Notification of emergency conditions and risk alerts	HMIS dashboard	MD/PPM/EDCD	1000

1. Population										
Outcomes & Strategic Interventions	Key Activities	Timeline					Output Indicators	Means of Verification	Responsible Entities	Resources required (000 NRs)
		2017	2018	2019	2020	2021				
		2017	2018	2019	2020	2021				
Intervention 2.4: Establish and strengthen risk alert and response system in case of public health outbreaks and emergencies										
	2.4.1 Develop health problem threshold alarm mechanism in surveillance system and auto alert to local levels		X				Number of diseases enrolled	Alert reports	PPMD/EDCD/MD	500
	2.4.2 Assessment for e-tool based Integrated Disease Surveillance System		X				Assessment report prepared	Assessment report	MoHP	1000
	2.4.3 Develop and test IDSS based alert and response system			X	X		Alert system developed	IDSS system	EDCD/MD/MoHP	1500

Nepal eHealth Strategy Implementation Roadmap

Vision	e-Health facilitates the delivery of equitable and high-quality health care services to enable all Nepali citizens to enjoy productive and quality lives
Mission	e-Health interventions strengthen Nepal's health systems by improving the use tools, information and evidence in planning, managing and supporting public health and clinical interventions and service delivery.
Overall Goal	The goal of the National e-Health Strategy is to harness the potential of ICT technologies to improve health services, health governance and management

2. Clients (Healthservice seeker)										
Outcomes & Strategic Interventions	Key Activities	Timescale					Output Indicators	Means of Verification	Responsible Entities	Resources required
		2017	2018	2019	2020	2021				
		2017	2018	2019	2020	2021				
		7	7	7	7	8				
		6	7	8	9	0				
		/	/	/	/	/				
		7	7	7	8	8				
		7	8	9	0	1				
Outcome 3: Improved availability and access of general and specialized healthcare services Availability(HR, Infrastructure,Logistics), access(geographical,Financial, Socio-cultural), Quality of Service										
Gover	Intervention 3.1: Institutionalize and strengthen National Tele-health technical unit to oversee and guide the Tele-health activities									

nance and founda tion	3.1.1 Develop regulatory provisions for telehealth services at different levels (including authenticity of services, professional security and client safety, user fees etc.)	X	X				Laws and guidelines are available	MoHP Admin	IT-MoHP /PPM	500
	3.1.2 Develop telehealth guideline and Standard Operating Procedures (SOPs)	X	X				Guideline and SoPs available	MoHPAdmin	IT-MoHP	600
	3.1.3 Certification arrangement for telehealth centres		X	X			Number of certified tele-health centres	Tele-health centre profile	IT-MoHP	500
	3.1.4 Incorporate telehealth services in minimum service standards of secondary and tertiary hospitals	X	X				Provision of tele-health services in MSS	MSS	IT-MoHP	500
	3.1.5 Develop Health Facility Registry Guideline and SoPs including service site mapping and referral chain for tele-health	X	X				HF registry guideline and SoPs available	HF registry guideline	IT-MoHP /PPM	600
Intervention 3.2: Institutionalize and strengthen Tele-Health centers										
	3.2.1 Need assessment and feasibility study of Tele-health services and ICT infrastructure in all health facilities	X	X	X	X	X	List of HFs feasible for tele-health	Feasibility report	IT-MoHP	500
	3.2.2 Design, Develop and Establish Tele-health unit in MoHP and provinces including support group and co-ordination mechanism with line agencies	X	X				Tele-health unit operational in MoHP	Tele-health focal point	QSRD	1000

			X	X	X	X	Number of tele-health centres	Tele-health report	QSRD/MoS D	40000
			X	X			Number of units functional	Annual report	QSRD/MoS D	5000
Intervention 3.3: Establish reliable network connectivity in all telehealth centres										
		X	X				Number of co-ordination groups formed	Meeting minutes	QSRD/MoS D	800
			X	X	X	X	Agreement for internet services	Tele-health report	QSRD/MoS D	140
Change and adoption (HR and capacity in architecture)	Intervention 3.4: Develop and implement user friendly telemedicine consultation mechanism and platform									
			X	X			Number of focal points	Tele-health report	IT-MoHP /MoSD	15000
		X	X				Number of tele-health centres in HF registry	HF registry database	IT-MoHP /PPM	800

<p>cture, progra mme manag ement, and standa rds and interop erabilit y)</p>	3.4.3 Design, Develop awareness module to aware people, health clients and health workers on promoting use of telehealth services		X	X	X		Number of awareness events	Tele-health report	IT-MoHP /NHEICC/MoSD	2100	
	Intervention 3.5: Strengthen capacity of the health workers to use Tele-Health services and applications										
	3.5.1 Develop curriculum for Public Service Examination, Continuous Medical Education (CME)and in-service trainings on telehealth services and implement	X	X					Tele-health content developed	PSC, CME and in-service training package	NHTC	500
	3.5.2 e-learning platform design and development for telehealth services and certification		X					e-learning platform available for HWs	Tele-health report	NHTC/ IT-MoHP	1500
	3.5.3 Program development for HW exchange and experience sharing with knowledge management repository module		X	X	X	X		Number of HWs visit organized	Tele-health report	NHTC, IT-MoHP /MoSD	20000
	Intervention 3.6: Community awareness regarding the availability of TeleHealth services (including hello health)										
	3.6.1 Design, develop system to establish and strengthen hello-health toll free services for counselling and information at all levels	X	X	X				Number of local levels with toll free services	Tele-health report	IT-MoHP /MoSD	15000
	3.6.2 Public awareness and information for telehealth services through public displays including wifi displays in HFs		X	X	X	X		% of HFs and local levels with tele-health contained	Tele-health report	IT-MoHP /MoSD	1000

							public displays				
	3.6.3	Promote social media for public awareness on telehealth and hello health service availability and use		X	X	X		Number of promotion events	Tele-health report	NHEICC/MoSD/ IT-MoHP	2800
Solutions (services and applications)	Intervention 3.7: Strengthen telemedicine and mHealth services to link specialized medical experts with community health workers and volunteers										
	3.7.1	Design and Develop roster repository of specialized medical and public health experts on telemedicine and mHealth	X	X	X			Number of health professional trained	Tele-health report	IT-MoHP /NHTC/NMC/NHPC	2500
	3.7.2	Mobile and web App development linking to health facility and expert profile inter-operable to HF and HR Registry		X	X			Number of apps by services	eHealth solutions registry	IT-MoHP /MoSD	2000
	Intervention 3.8: Develop ICT-enabled platforms to help chronic and long-term patients to help them (information what they should do, how and when)										
	3.8.1	Design and Develop health care package/module including IEC, BCC, health messages for selected chronic diseases and life-style improvement		X					Number of diseases and conditions in the messages	Health messages list for chronic diseases, module	QSRD/NH EICC
3.8.2	Integrate chronic disease health package/module to country eHealth portal for public use		X	X				Number of diseases enrolled	List of health package messages for chronic	NHEICC/ IT-MoHP	600

	3.8.3 Interactive web and mobile app development for health care including support to chronic patients		X	X			Number of diseases in app	App registry	IT-MoHP /NHEICC	1000
Outcome 4: Increased compliance/adherence and satisfaction toward health services whilst increasing individual responsibilities for personal health										
Governance and foundation	Intervention 4.1: Support drive towards CRVS and development of client identifiers for use by health services									
	4.1.1 Legal and procedural and technical arrangement for inter-operability among CRVS, HF registry, HW Registry, NID and RHIS for shared use	X	X	X			Unified codes developed for health	Health information inter-operability framework	IT-MoHP /HCD/PPMMoHP	2000
	4.1.2 Design, develop and strengthen death registration linking to CRVS and RHIS	X	X	X			Proportion of deaths registered with cause of deaths ascertained	CRVS database, death registry	PPM/MoSD/MoFAGA, IT-MoHP	20000
	4.1.3 Foster health sector co-ordination for and Department of civil registration for regulation, co-ordination and data sharing.	X	X	X			Proportion of births and deaths timely and completely registered	CRVS database	PPM/MoSD/MoFAGA	1000
Change and adoption (HR and capacity in architecture, programme)	Intervention 4.2: Train and orient health workers to use the related applications and software on health services									
	4.2.1 Design, develop module and train health workers on data sharing mechanism and	X	X	X			HWs trained on eHealth	NHTC annual report	NHTC, IT-MoHP	3500

management, and standards and interoperability)	eHealth products serving the clients						products			
	4.2.2 Set institutional mechanism at all levels for integrated data management linking to CRVS, Verbal autopsy and medical certification, HMIS, HF registry and social security information	X	X	X			% of governance mechanism at all levels having integration of systems	eHealth report	PPM/QSRD	2100
	4.2.3 Design, develop module and mechanism to promote and orient health workers to aware people for using web platforms, telehealth and apps developed or authenticated by health system	X	X	X	X	X	% of HWs oriented	Training report	QSRD/PPM	3500
Solutions (services and applications)	Intervention4.3: Develop, implement and expand patient tracking systems – web and mobile based (HIV/AIDS, TB, MDR TB, ANC/PNC/Delivery, Immunization, Chronic and long-term treatment required cases etc.)									
	4.3.1 Design and Develop health promotion package/module, integrate to country health portal	X	X	X			Number of health promotion packages in portal	Health web portal	IT-MoHP , NHEICC	2000
	4.3.2 Design and develop and/or promote mobile apps for NCD prevention and health promotion including traditional medicine	X	X	X			Number of apps developed by diseases	App registry	IT-MoHP	2500

4.3.3 Design and Develop set of health messages (sms, email and other media) for periodic circulations (reminders, follow-up) for continuum of care and deliver	X	X	X	X	X	Number of messages delivered by services	Health message database	NHEICC/IT-MoHP	30000
4.3.4 Design and Develop trackers for selected health services and integrate to HMIS	X	X	X			Number of trackers	App registry	PPM/QSRD	5000

Intervention 4.4: Develop mechanism to send appointment reminder messages

4.4.1 Design and Develop and deploy reminder messages for high priority public health programs and morbidities			X	X		Number of messages developed	Message list	IT-MoHP/NHEICC	2500
4.4.2 Design and Develop Arrangement for selected health services protocols access through mobile apps for knowledge on continuum of care and follow ups			X	X		Number of protocols in public domain by diseases	Health web portal	QSRD	1600
4.4.3 Design and Develop and deploy electronic health recording (EHR) system in HMIS and link with auto reminder for follow ups	X	X	X			Number of reminders sent to clients	HMIS database	MD/PPMD/QSRD	10000

Intervention 4.5: Use digital personal health records

4.5.1 Design and Conduct an assessment on infrastructure, HR and other requirements in the hospitals for digital personnel health records management	X	X			Assessment report	MoHP portal	IT-MoHP /PPMD	1000
4.5.2 Develop hospital information system for personnel health records management and sharing			X	X	Number of hospitals with EMR.	HMIS database	QSRD/MD/PPMD	100000
4.5.3 System development for sharing health information to insurance			X	X	Number of clients shared the data	Health Insurance System database	MD/PPMD, IT-MoHP	5000
4.5.4 Develop information sharing mechanism (HF registry, HR registry, EHR, Ambulance registry etc) for referral and emergency management			X	X	Number of cases referred using the mechanism	HMIS	MD/QSRD	10000

Nepal eHealth Strategy Implementation Roadmap

3. Health workers (Service providers)										
Outcomes & Strategic Interventions	Key Activities	Timescale					Output Indicators	Means of Verification	Responsible Entities	Resources required (NRs 000)
		2017	2018	2019	2020	2021				
Outcome 5: Improved enabling environment and capacity for delivery of safe and effective health services										
Governance and foundation	Intervention 5.1: Strengthen the eHealth policy and supporting environment									
	5.1.1 Policy, regulation, and protocol development on eHealth implementation for health workers	X	X				Procedural documents are available for HWs	Regulatory documents	QSRD/PP MD	500
	5.1.2 eGovernance implementation is put in office procedures at all levels	X	X				Office procedure is available with eGovernance priority	Office procedures at all levels	Admin. MoHP	800
	5.1.3 Develop transition plan for paperless office and service delivery at all levels		X				Process and actions for paperless office available	Transition plan	Admin/Q SRD/MoSD	500
	5.1.4 Make provision of posts for IT in the health system		X	X	X		Posts for IT provisioned	Number of posts created	Admin/IT-MoHP/MoSD	2500

3. Health workers (Service providers)										
Outcomes & Strategic Interventions	Key Activities	Timescale					Output Indicators	Means of Verification	Responsible Entities	Resources required (NRs 000)
		2007	2008	2009	2010	2011				
		2	2	2	2	2				
		0	0	0	0	0				
		7	7	7	7	8				
		6	7	8	9	0				
		/	/	/	/	/				
		7	7	7	8	8				
		7	8	9	0	1				
Intervention 5.2: Improve availability and utilization of standard ICT logistics (equipment) in the health facilities										
5.2.1 Advocacy for provisioning concessions and exemptions in IT equipment and services for health				X		X	Low price ICT and modern equipment available to the health workers	Approved list for concession and exemptions	MoHP/H CD	100
5.2.2 Equip all health facilities with electricity, computer, display board, internet and other logistics related to e-health initiatives	x	x	x				% of facilities with computer and internet	Inventory database, NHFS	QSRD/PP MD/MD/ MoSD	100000
5.2.3 Develop electronic inventory of logistics (equipment, infrastructure and other assets) at all levels	x	x	x				% of facilities electronic inventory of logistics	Inventory database, NHFS	QSRD/PP MD/MD/ MoSD	3500
Intervention 5.3: Define national standard for eHealth information storage and use based on international standards										
5.3.1 Define national standard for eHealth information storage, use and sharing		x	x				Protocols and guidelines in public domain	e-Library	IT-MoHP	1500
5.3.2 Operate all servers at GIDC	x	x	X				Servers hosted at	GIDC server	IT-	1000

3. Health workers (Service providers)										
Outcomes & Strategic Interventions	Key Activities	Timescale					Output Indicators	Means of Verification	Responsible Entities	Resources required (NRs 000)
		2016/17	2017/18	2018/19	2019/20	2020/21				
	(Government Integrated Data Center)						GIDC		MoHP	
Intervention 5.4: Identify appropriate referral network and establish linkages										
	5.4.1 Develop/revisit referral guideline for all services incorporating eHealth infrastructure, tools and techniques (HF registry, ambulance registry, HMIS, HR registry, GIS based maps and utilities)		x	x			ICT enabled referral guideline available to HWs	eGuideline for referral system	QSRD	3000
	5.4.2 Guideline and protocol development for web based applications and mobile apps for referral			x	x		Guideline and protocol for referral apps	Referral portal in MoHP web	QSRD	1500
	5.4.3 Develop guideline for GPS equipped ambulance operation and central command system			x	x		Guideline and protocol for referral apps	Referral portal in MoHP web	QSRD	500
	5.4.4 Incorporate IT based referral and emergency management in minimum service standard (MSS) of health services			x	x		Coverage of ICT based tools and referral in MSS	MSS Booklet	QSRD	600
Intervention 5.5: Improve knowledge and skills of health workers (including health volunteers) on eHealth										
Change and adoption (HR)	5.5.1 Design, Develop and deploy capacity	x	x				Training/learning	Packages in	IT-	30000

3. Health workers (Service providers)										
Outcomes & Strategic Interventions	Key Activities	Timescale					Output Indicators	Means of Verification	Responsible Entities	Resources required (NRs 000)
		2016/17	2017/18	2018/19	2019/20	2020/21				
and capacity in architecture, programme management, and standards and interoperability)	building to HWs on eHealth tools and techniques (study curriculum, in-service training, iLearn, CPD, CME etc)						packages available	eLearning site	MoHP, NHTC	
	5.5.2 Establish remote mentoring system for key health services connecting experts and develop mobile/web app training for capacity development				X	X	Central remote mentoring system established	Platform for mentoring in MoHP web	QSRD/ MoSD	5000
	5.5.3 Establish e-library, eLearning and webinar facilities at all levels		X	X	X		e-library established and regularly updated	eHealth report	Admin/ PPMD/ QSRD	5000
	5.5.4 Conduct seminars, exchange visits, symposium, honoring program and other promotional events for HWs for eHealth		X	X	X	X	Number of exposure events for eHealth	eHealth report	NHEICC /NHTC/ QSRD	5000
	Intervention 5.5: Promote health workers to use ICT solutions and applications									
5.5.1 Revise Job Description of HWs incorporating eHealth		X	X				Revised job description of HWs	JD of HWs	NHTC/ Admin/ MoHP/ QSRD	1000

3. Health workers (Service providers)										
Outcomes & Strategic Interventions	Key Activities	Timescale					Output Indicators	Means of Verification	Responsible Entities	Resources required (NRs 000)
		2017	2018	2019	2020	2021				
		2017	2018	2019	2020	2021				
	5.5.2 Use of ICT enabled training resources in all the trainings and orientations for health workers		X	X	X	X	Revised training packages and methods	eHealth enabled and contained training packages	IT-MoHP, NHTC	5000
	5.5.3 Enable access of health workers to eHealth resources and professional development resources		X	X	X	X	eHealth products and resources available in public	Visitors to resources	QSRD/NHTC/NH EICC	2000
	5.5.4 Honor and felicitate health workers for using ICT tools to improve efficiency and effectiveness			X	X	X	Performance standard set for honoring health workers	Number of health workers honored	NHTC/QSRD/Ad minD	3000
Intervention 5.6: Include eHealth content in the course curriculum of different level health courses										
	5.6.1 Revise health worker's curriculums to incorporate eHealth including public health, MBBS, Nursing, HA			X	X	X	Revised curriculum for health	Hws courses	IT-MoHP, NHTC	2000
	5.6.2 Initiate health informatics course in Nepal in collaboration with universities and training centers		X	X	X		Health informatics education initiated	Number of students enrolled	QSRD/PMD/Ad minD	3000

3. Health workers (Service providers)										
Outcomes & Strategic Interventions	Key Activities	Timescale					Output Indicators	Means of Verification	Responsible Entities	Resources required (NRs 000)
		2016	2017	2018	2019	2020				
	5.6.3 Develop ICT based training packages and make available with roster of resource persons minimizing oral lectures		X	X	X		Training packages with ICT based lectures and demos	Health portal	NHTC/QSRD	2500
Solutions (services and applications)	<i>Intervention 5.7: Digitalize national medical standard and clinical protocol and make available to the health workers</i>									
	5.7.1 Update and digitize national medical standard and clinical protocols		X	X	X		Medical standards and protocols digitized and posted	Health portal	QSRD	3000
	5.7.2 Update and digitize all health service guidelines, regulations and service delivery methods		X	X	X		Documents updated and made available in public	Number of documents digitally available	QSRD	5000

Nepal eHealth Strategy Implementation Roadmap

4. Public Health Managers and Policy Makers										
Outcomes & Strategic Interventions	Key Activities	Timeline					Output Indicators	MoV	Responsible Entities	Resources required (NRs 000)
		2017	2018	2019	2020	2021				
		2017	2018	2019	2020	2021				
		7	7	7	7	8				
		6	7	8	9	0				
		/	/	/	/	/				
		7	7	7	8	8				
		7	8	9	0	1				
Outcome 6: Enhanced access to data and information for effective planning, management, governance and evidence-based decision making										
Governance and foundation	Intervention 6.1: Strengthen governance mechanisms for implementing interoperable eHealth solutions within an OpenHIE architectural framework									
	6.1.1 Operation of the Steering Committee (SC) and TWG for eHealth at MoHP		x				Steering Committee (SC) for eHealth re-profiled	Meeting minutes	QSRD	1500
	6.1.2 Strengthen M and E at federal and provincial level for eHealth monitoring and evaluation		X	X			M and E framework developed	M and E framework	PPMD	500

6.1.3 Establish multi-disciplinary Research and Development (R and D) mechanism under IT-MoHP to evaluate eHealth solutions, standardization and co-ordination	X	x	X	X	X	R and D team formed	Number of products evaluated	IT-MoHP	2000
6.1.4 Conduct annual convergence meetings with key stakeholders		x	x	x	x	Annual convergence meetings	Meeting reports	QSRD/HC D	4000
6.1.5 Form eHealth TWG at provincial levels and assign focal points for coordinating federal and local levels		X	X	X	X	eHealth TWGs at provinces	Number of TWGs	QSRD/HC D	2800
6.1.6 Promote automated office process for paperless works (file tracking, eAttendance, grievance management, digital signature etc).		X	X	X	X	eGovernance conceptualized	eGovernance report	IT-MoHP	4000
Intervention 6.2: Establish interoperability layer for health information systems by adopting open HIE									
6.2.1 Design, Develop and Deploy the health enterprise architecture (EA)		X				EA report available	EA report	IT-MoHP	1500
6.2.2 Review, adopt, implement relevant open standards			X	x	x	Review report	Number of standards adopted	IT-MoHP	1500

6.2.3 Develop and communicate specification and standard for health information system and eHealth/mHealth tools	X	X				Specification and standard rollout	Specification/standards booklet	IT-MoHP	2000
6.2.4 Develop registries as required by Open HIE Framework (HR, CR, TR, HF, Inventory registry etc)	X	X	X			Registries developed	Registry database	IT-MoHP	20000
6.2.5 Develop code banks for interoperability (HR, Logistics, HF, Geography etc) and make public	X	X	X	X		Code compilation in publicdomain	Code book	IT-MoHP,HCD	2500
Intervention 6.3: Develop and enforce minimum standard for data reporting from both state and non-state actors									
6.3.1 Design, Develop and Establish data sharing arrangements among registries and information systems			x	x	x	Registries are inter-operable	Data sharing guideline	IT-MoHP	500
6.3.2 Develop the Nepal Health Data Dictionary		X				First version of Nepal Health Data Dictionary	Nepal Health Data Dictionary	IT-MoHP/HCD	1000
6.3.3 Develop standards, guidelines and SoP for central data management system for EHR and sharing of data	X	X				EHR data sharing facilitated	Data sharing guideline	IT-MoHP /QSRD/MD	1500
Intervention 6.4: Establish national health data bank and ensure security of data establishing multiple backups in different locations									

	6.4.1 Establish provincial and national health data bank in coordination with GIDC	X	x					Data bank establish and functional	eHealth report	QSRD	500
	6.4.2 Develop policies and advocacy for data sharing, use, data security and privacy	X	x					Policy and regulation developed	Data sharing guideline	IT-MoHP/MD/HCD	1500
Change and adoption (HR and capacity in architecture, programme management, and standards and interoperability)	Intervention 6.5: Capacity enhancement of managers and policy makers in the area of eHealth policy and strategic management – long and short term courses in collaboration with academia										
	6.5.1 Convene high level inter-sectoral meetings for eHealth promotion and sensitization to policy and decision makers		x	x	x	x		Inter-sectoral meetings held	Meeting minutes	HCD	1200
	6.5.2 Develop sensitization and innovation promotion campaigns for policy makers at local levels			X	X	X		Local level leaders are sensitized on eHealth use	eHealth report	HCD /QSRD/MoS D	3500
	Intervention 6.6: Promote the use of the existing information systems for decision making, monitoring and planning										
	6.6.1 Ensure mechanism for data use by policy makers and feed into annual and periodic planning process		X	X	X	X		Policy makers are aware of the health situation and reflected in policy and planning	Meeting minutes	PPMD	400
Solutions (services and applications)	Intervention 6.7: Ensure quality health information from different sources available to the programme managers (user friendly dashboards) – inbuilt data validation and triangulation mechanism										

6.7.1 Design user specific application/ format for sharing information (eg report, brief, dashboardetc)		X	X	X		Information sharing platform developed	Number of visitor	PPMD/MD	500
6.7.2 Mechanism set for analyzing information from different sources, quality assurance, synthesize and triangulate		x	x	x	x	Data analysis group formed	Analytical report	PPMD	1000
Intervention 6.8: Strengthening of existing health information systems – electronic record system, e-reporting (web and mobile) and e-monitoring systems, including supply chain monitoring and management system									
6.8.1 Develop IT based continuous performance monitoring system for provinces, local levels and health programs and operationalize	X	X	X	X	X	Performance monitoring system developed	Performance monitoring report	PPMD	500
Intervention 8.9: Introduce office automation at state and non-state health institutions as a gradual transition towards paperless office									
6.8.2 Develop eGovernance plan and operationalize			X	X		Solutions are available and used for eGovernance	e-Governance plan	IT-MoHP	1500

Implementation plan

The roadmap will be implemented by all the wings and tiers of the health system. The activities will be filtered for assigning the responsibility to concerned agencies or health units. Quality Assurance and Regulation Division of the MoHP will conduct meetings of the responsible agencies and units to assign the responsibility through eHealth unit. The activities will be make reflected in the workplan of the MoHP through respective divisions.

External development partners and supporting organizations will be framed together for resource pooling and capacity building.

Monitoring and evaluation

The Policy, Planning and Monitoring Division (PPMD) will monitor the roadmap implementation and report to the steering committee twice a year. An eHealth Implementation Guideline would be developed to facilitate and govern eHealth related activities by all levels of government and other innovators. The steering committee provide directives and supportive feedback to the Quality Assurance and Regulation Division through Policy, Planning and Monitoring Division. The major monitoring tool would be the eHealth interventions registry maintained by the eHealth unit. The number of activities by milestones will be monitored for checking synchronized and complete implementation. The eHealth related functions delivered by provincial and local level agencies will also be monitored for standards and resource optimization.