Bangladesh

Kindly describe a successful or challenging e-health initiative your country has taken.

The Government of Bangladesh has a wide range of specific programmes to gradually improve the e-health infrastructure and its use in the country. It includes administration and management of health services, collection and exchange of health service data, performance analysis of vertical programmes, population surveys, professional communication, supporting medical education and research, telemedicine, e-records, etc. In fact, the e-health initiative in Bangladesh began in 1998 when the Ministry of Health & Family Welfare (MOHFW) undertook the Health & Population Sector Programme (HPSP) to enhance efficiency of programme implementation. Under the HPSP, all health and population-based activities were listed and grouped in different lines or sectors. One Line Director was assigned to look after each sector. The major responsibility of e-health implementation in the health services went to Line Director of MIS (health). Other Line Directors – such as Line Director (pre-service and medical education), Line Director (planning and research), Line Director (hospital) and other Line Directors for vertical programmes – also shared some responsibilities in their respective fields. In 2003, the HPSP was revised and renamed the Health, Nutrition and Population Sector Programme (HNPSP) with a new Operational Plan (OP) for FY2003-2010. Current e-health activities are thus being implemented under HNPSP FY2003-2010 OP.

The Line Director, MIS (health) is responsible for (a) the collection and exchange of health service data across all service delivery points, health managers at different tiers, and officials at MOHFW to support monitoring of progress of health programmes and policy decisions; (b) conducting annual household survey (Geographical Reconnaissance or GR) personnel, logistic and financial MIS; (c) telemedicine; and (d) e-records, etc. Computers have been provided to the MOHFW, central store for medical supplies (national level), all national and regional tertiary hospitals, 64 district health managers and most of the 464 sub-district hospitals. These computers are connected through the internet. Hospital-based service data is still collected in formats compiled locally with limited possibility of desegregation. Domiciliary data collected by field health workers is compiled at sub-district health offices and sent to MIS-HQ in Dhaka. Annual GR data is collected on each household and also processed at MIS-HQ. The Health Service Personnel Database is being routinely used during the placement of health personnel. Financial MIS and logistic MIS are still in the developmental phase.

The Director, MIS (health) has an ambitious plan to establish telemedicine centres in several key tertiary care and specialised hospitals, with links to selected remote district and sub-district hospitals. However, this is still in the planning phase.

The introduction of e-records for each patient in the hospital is difficult in the public sector hospitals of Bangladesh. The principle reason is huge patient load and scarcity of human and ICT resources. In Bangladesh, there is no staff for clinical clerkship in the patient wards, which is a problem in many countries. Doctors and nurses remain heavily engaged in patient services and can give little attention towards maintaining quality patient records. The country is not financially able to provide a computer to each ward of all hospitals immediately. It is more difficult to maintain computer-based patient registers at the outpatient level because OPD doctors can hardly give an average of five minutes to see a patient in the OPD. Recently, few above-average-cost private hospitals have started electronic patient record systems. But, similar systems would be challenging to introduce in other public and average private hospitals. The MOHFW is currently conducting a project under the support of Health Metrics Network (WHO-HQ) to assess the Health Information System (HIS) of Bangladesh and develop a plan for future HIS in the country. This project will examine, amongst other issues, how to introduce e-record systems in the country. The National Institute of Cardiovascular Diseases (NICVD), Dhaka (a public sector hospital) runs an admission e-record database. For about a year, a biochemistry lab e-record database has been in operation satisfactorily in the same institute, which eliminated paper-based registers.

The Line Director (pre-service and medical education) provided computers, printers and multimedia systems to the medical institutions to support teachers in preparing and presenting educational materials, processing students' assessment records, doing data entry and analysis, gathering information from the internet, and communicating

with other professionals. The Line Director (planning and research) supported the creation of facilities for MEDLINE and POPLINE services, Bangladesh Medical Index services, internet access services, data entry and analysis facilities, etc. The Line Director (hospital) provided computers to different hospitals to support better hospital management. The Line Directors of different vertical programmes used ICT in various ways for record-keeping, performance analysis and data communication.

What were the financial challenges and costs associated with implementation of this programme?

Implementation of a reasonable e-health infrastructure would require large numbers of computers and ICT equipment, software, computer-literate staff, troubleshooting technicians, internet costs, etc. The country needed to compromise with this reality and limit expectations to a manageable level. The Line Director (MIS) has estimated that a total of US$8.5 million will be required during FY2003-2010, of which US$4.3 million will be recurrent expenditure and US$4.2 million will be capital investment.

What have been the main technological challenges to implement e-health in the country?

- *Financial constraints preventing the purchase of an appropriate number and type of ICT equipment*
- *Unavailability of adequate number of computer-literate employees to implement e-health*
- *Recruitment of separate ICT workforce is not possible due to finances*
- *Long-prevailing weaknesses in quality record-keeping, as well as inertia for improving*
- *Huge patient loads prevent the limited number of hospital staff from maintaining proper e-records*
- *Weak internet backbone and high internet access cost*
- *Weaknesses in conceptualisation of the e-health framework (data need, hardware, software, analysis technique, transmission, utilisation, etc.).*

Have any ethical issues been raised during the design and implementation of e-health programmes?

E-patient records are not yet in a stage to raise any ethical debate. The personnel MIS database is maintained in a secured server and only available to the personnel managers. Privacy of data is strictly maintained. Therefore, ethical issues are not yet a problem.

Has the implementation of e-health programmes required any legal or regulatory changes?

Until now, the MOHFW did not feel such need.

What have been the outcomes of your e-health initiatives?

(a) *Personnel managers are able to make decisions more quickly with respect to personnel placement*

(b) *Better monitoring of the progress of health programmes and achievements of health MDGs*

(c) *Increasing understanding of the importance of e-health by the policy-makers, which led MOHFW to launch a project for the assessment of existing HIS and developing a plan for future HIS with support from Health Metrics Network (WHO HQ, Geneva), with the intention to build a comprehensive and integrated infrastructure of HIS and e-health.*

List of all selected e-health initiatives and e-health contacts in Bangladesh

There are some innovative e-health initiates in the country. Integrated Rural Health Information System (IRHIS) is one. IRHIS is trying to exploit the micro-credit finance mechanism to develop rural health insurance programmes through a network of 64 private and 64 public-sector rural health facilities. Its system is proposed to integrate M-or E-commerce, a messaging system, telemedicine, a lab info system, pharmacy retail, MIS and training, a data archive, communication and networking. The organisation projects many success factors in Bangladesh rural

areas, such as mass awareness on ICT; rapid expansion of mobile phone operation; the possibility of availing computer literate graduates; extensive presence of NGOs; existing micro-credit financing system; and growing health awareness of local people. One of the City Corporations of Bangladesh (Rajshahi) introduced an Electronic Birth Registration System (EBRS) that provides citizens a machine-readable electronic card to update and retrieve demographic, schooling and immunisation records. The card works as an incentive because without producing the card, citizens do not get healthcare, immunisation, primary education or other city-corporation services. D.Net (Development Research Network) is an NGO which is providing e-health services through their tele-centres. A telehealth employee moves from door-to-door and connects the otherwise out-of-reach families with quality health service via mobile communication to their head office in Dhaka, where doctors are available round-the-clock. During the President of Intel's recent visit to Bangladesh, he had the opportunity to witness a telehealth employee demonstration. The largest mobile operator in Bangladesh, the GrameenPhone, has joined with TeleNor enterprise to operate a round-the-clock e-health service, where subscribers can call a number to ask doctors for medical advice. The fee is higher than standard conversations and charged on a per-minute basis. The Diabetic Association of Bangladesh is piloting telemedicine services for patients from some selected remote centres. MEDINOVA, a diagnostic clinic, is running a commercial tele-medicine service to get medical advice from overseas doctors.