ICT In Indian Health Scenario
Accelerating delivery of health services

India is committed to achieving the MDGs, and in this respect maternal and child health is of great importance. Because of the grave situation of child and maternal mortality in India, and the high burden of infectious and communicable diseases which persists and accounts for a large proportion of the global burden, MDGs 4 and 5 hold all the more relevance for India. India has a very high child mortality rate of 81 per thousand (UNDP, 2004). As per the UNDP Human Development Report 2004, the maternal mortality rate in India in the year 2000 was 540 per hundred thousand live births – this figure is much higher than many of the developing nations. These figures reflect upon the extremely deplorable situation of women’s health in the country.

Over the years development planning in India has focused on reducing the burden of illness and mortality among women and children. A large number of development and public health programs such as the Integrated Child Development Services (ICDS) scheme, Expanded Programme of Immunisation and Maternal and Child Health programmes have been geared towards this since a long time, much before the MDGs were envisaged. Assistance provided by NGOs and agencies has also been towards strengthening the programmes and improving their outreach. As development practitioners in India, we need to understand problems and issues specific to India, focus on the status of ICT in health in the country, and how it can best be utilised to maximise the benefits of technology in bringing about appreciable gains in the field of maternal and child health.

Presented below are some important ways in which ICT aids in public health programmes of programmes on maternal and child health in India.

Dissemination of information at the local level
Awareness generation is a major responsibility of the media, and has been of fundamental importance in ensuring utilisation of the various schemes in operation, especially in the case of women. In India, where illiteracy, ignorance and prevailing social bias against women can be formidable obstacles, media plays a vital role in reaching out to the target population, women in this case. It has been seen that women’s access to media leads to better health and fertility outcomes. In fact, greater knowledge and awareness among women can be beneficial for the health status of the entire family, especially child health since women are the primary care providers to the children. Radio and television can be important means for reaching out to the people. But the access to these is limited, especially in remote and backward areas. In such cases the health workers have to reach the target population individually and serve their needs.

Geographic targeting of health interventions
ICT is increasingly being used as an effective tool for better geographic targeting of health interventions. In recent years there has been a spurt in the availability of data on maternal and child health indicators through the National Family Health Survey (NFHS) and Reproductive Child Health (RCH) surveys. The National Sample Survey Organisation (NSSO) also provides periodic data on morbidity and nutritional status. These indicators can be mapped to provide a composite picture of the regional situation of maternal and child health. This is a technique widely being adopted by international development agencies including the UN to focus their resources on the poorest of regions.

Government and public agencies are also using this research support to target interventions. One such exercise was the mapping of the nutritional status of children in Orissa by the state government in 1998 using data on weight for age from ICDS records at the block level. The maps brought about quantitative substantiation of a number of notions – that malnutrition was seasonal in occurrence, and that severe malnutrition was more prevalent among the below three age-group than the 4-6 age group. This exercise was carried out in order to identify blocks with high prevalence of severe malnutrition among children. A comprehensive set of measures was then outlined for Anganwadi (village child care centre) set up by the State Government workers and supervisors of those blocks towards nutrition, health care as well as enhancement of socio-economic status. There was also the vital element of training of all ICDS and other health workers in mapping and local analysis for solutions.

Improving effectiveness of health interventions
Internet and mobile communication can greatly enhance connectivity between grassroot health workers and medical specialists as well as enable transmission and storage of data directly from field to centralised units. One such initiative was taken in Nalgonda district in Andhra Pradesh whereby handheld computing devices called Personal Digital Assistant (PDA) which was provided to the Auxiliary Nurse Midwives (ANMs) who made house visits to rural areas. Through this device ANMs could record patient information directly on to the PDAs, which enabled them to follow up specific cases, whether of pregnant women for antenatal care or of children for immunisation. In electronic format, the data could also be easily transmitted to higher administrative levels. The project was financially supported by infoDev, a funding arm of the World Bank. The initiative greatly facilitated data generation and transmission from source to higher levels where they could be utilised in further planning and decision making regarding the amount of resources required to meet the needs of the region. This also helped in better targeting the beneficiaries for antenatal care and immunisation and identification of high risk population in terms of illness.

A similar initiative is the village based teledoc initiative of the Jiva Institute in which field representatives working in the villages transmit health information on mobile phones to doctors who then perform diagnosis and prescribe treatments,
Another initiative was the WHO supported Health InterNetwork (HIN) programme. Its objectives were broader based, aimed at strengthening policy making, service provision as well as health research networking. It was piloted in Orissa and Karnataka. The key elements of the initiative include firstly networking of libraries and medical colleges to facilitate exchange of health information for research purposes, and secondly providing computers and Internet facilities to Primary Health Centres (PHCs) and Community Health Centres (CHCs) to enable maintenance of database as well as effective health interventions through e-consultations.

Thus, while old technologies continue to play their role, new initiatives are emerging focusing on the major gaps which exist in the Indian health system with respect to facilitation of communication, information exchange and targeting vulnerable groups.

Limitations and possibilities
We have seen the many ways in which ICT plays an enabling role, whether in conveying essential health messages to the community, or in enhancing the efficiency of administration of health care interventions. While the primary role has been of the communication media of radio and television in awareness generation, computers and Internet technologies have also made significant forays. However, at present, it can be said that computer application in maternal and child health care has only skimmed the surface – there are enormous potentialities which are yet untapped in this country.

The first steps are extremely encouraging. However, there are several limitations posed to the adoption of recent technologies in health sector in developing countries in general, which are also relevant to India. One of the prime questions being – are the technologies sustainable in the long run? Do they ensure commensurate gains per unit of cost input? Initiatives like the use of PDAs by ANMs in Andhra Pradesh need to be sustainable in the long run and present viable replicable models with the potential to be adopted at a national scale. Coupled with the cost consideration is the problem of infrastructure. Rural areas specially face the problem of irregular power supply, lack of telephone lines, and poor connectivity by all weather roads. All these factors impede the smooth functioning of a system heavily reliant on the above factors. Lack of infrastructural support is a common problem in remote areas, where the burden of maternal and child mortality is the highest and which are most in need of such technical innovations to increase the effectiveness of health interventions. Lack of sufficient skills and hence the consequent need for skill development is another consideration. Health functionaries at the grass root level, such as ANMs need to be trained first in order to be able to operate the technical tools being provided to them.

Stimulating local digital health content in Ghana
Working with local communities in rural Ghana, the research project 'Stimulating local digital health content' is testing ways to help the 'push' for local content by building community capacities to create and distribute local knowledge on mother and child health in a digital format. The project is co-financed by International Institute for Communication and Development (IICD) and Gamos, and implemented by the Health Foundation of Ghana. Work will soon start in a rural district. The project proposes a number of actions that will increase awareness of innovative mechanisms for recording and accessing locally relevant information, and builds capacity in specific groups for such capture and generation of key relevant development information in a context relevant form. The objective is to stimulate the creation and distribution of local knowledge relevant to mother and child health in a digital format that is inclusive of the illiterate and semi literate. The planned outputs are as follows:

- Workshop to increase awareness of possibilities created by digital media and consultation among the relevant Government and NGO community in Ghana
- Pilot capture and creation of local language, visual, information that supports good health practice among mothers and children
- Monitoring and evaluation of changes in knowledge and practice among a client group
- Dissemination and sharing workshop on lessons learned
- Report on findings

Source: [http://www.iicd.org](http://www.iicd.org)

Since the early 1990s, international development agencies such as the World Bank have been promoting investment in health as a productive investment in human capital. From that perspective, and considering the number of lives that would be saved per unit money invested in the use of the latest ICT tools, this seems a viable option. It needs to be seen, however, as to whether the government would commit to a higher public spending on health in order to realise this. The extremely low public expenditure on health by the Indian government (less than one per cent of GDP) raises questions on the feasibility and sustainability of such technical inputs in the long run. This is especially so since it’s only on a countrywide scale that use of any technology could bring about substantially appreciable results, and the government must take the lead in this regard.

Progress can be painfully slow, given the many procedural hurdles to any initiative in the bureaucratic Indian setup, but a beginning has been made and is surely set to go a long way in taking us closer to achieving the MDGs 4 and 5 of reducing under-five mortality by two-thirds and reducing maternal mortality by three-quarters by the year 2015. While initiatives have begun, the patchy nature of the application models needs to be strengthened into a comprehensive IT-intensive system to bring about a substantial impact on maternal and child mortality through ICT tools in public health programmes. Such projects would be cost-intensive, more so in the initial stages involving setting up of the infrastructure and generation of adequate skills among the functionaries. It is therefore required that the projects be provided sustained financial support, by the government and if required, with external assistance. There is also the need for a centralised umbrella organisation which coordinates the application of ICT in the health sector in general and provides it a direction and regulatory framework. Only the government can provide such support through any of its arms, such as Department of Electronics or Ministry of Information Technology.