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Tools for treatment – Scope for using technology in reforming and improving the health sector is immense

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Tools for treatment

Scope for using technology in reforming and improving the health sector is immense

By Dr Sania Nishtar

Why does technology get spotlighted in the discourse over health outcomes and the discussion on health sector reform? For the simple reason that health and technology have shared agendas. It is well established that in addition to serving as a sine-qua-non of therapeutics and diagnostics in the medial field, technology can not only reduce health-related costs but also medical errors, which are the fifth leading cause of death in countries such as Pakistan. This realization has lent impetus to the emergence of a number of institutional, individual and group professional efforts, in the country, over the last two decades aimed at mainstreaming technology into public health and health systems. Although these are steps in the right direction these need to be strategized and their objectives honed to ensure that they are in line with meeting priority health objectives.

Within this context, several examples can be quoted of pilots within Pakistan from which evidence can be gathered relevant to the feasibility and cost-effectiveness of up-scaling particularly in the areas of telemedicine, e-solutions in hospital settings, capacity enhancement and learning, collection of data and its management and information dissemination. Telemedicine, in particular, has had several applications as a result of the existence of appropriate network connectivity and tools. For instance in the Holy Family Hospital Rawalpindi, networking capacity, availability of audio-visual conference facilities and necessary work flows have enabled the creation of a telemedicine network, which benefits a remote *Tehsil* Headquarter hospital. Similarly the *Rawalpindi* General Hospital's Department of psychiatry leveraged the same concept for serving the mental health needs of the earthquake victims in the post October 08 scenario with successful results, which have been published. However it must be recognized that the existence of appropriate infrastructure is key to the success of such arrangements, which explains why some telemedicine projects in remote areas such as in the case of the *Baltistan* Health Foundation intervention in *Gilgit* is experiencing operational difficulties. This clearly highlights that the availability of telecommunications infrastructure is a prerequisite for telemedicine; given this realization, it can be inferred that it is not feasible to introduce in any setting. Another important issue to address in this context relates to health provider buy-in. The documented successes to date have used doctors in a pilot setting; however for large scale application, the question of what constitutes the right incentives to work in such an arrangement on a sustainable basis is one that needs to be addressed pragmatically.

The second application of technology is in the area of providing e solutions in hospitals. It is well established that one of the tools used in this area – Position Order Entry (CPOE) – can contribute to reducing medical errors whereas the other tool which involves Clinical Decisions with Support Systems (CDSS) can and assist in improving health outcomes. Successful examples of this application also exist in the Pakistani setting. Perhaps the most ambitious and progressive IT-based project undertaken in Pakistan is the end-to-end, fully integrated Health

Management System currently under implementation at Aga Khan University Hospital. Using Oracle database and tools, Fauji Foundation hospital's technology team has developed "Medix" – a cost effective, simple to devise and easy to use customized software application used to manage their health system. A similar exercise has been undertaken by Shaukat Khanum Memorial Hospital whereby the hospital's internal IS team has developed a software application customized for SKMH, again using Oracle technology. Ziauddin Hospital in Karachi is the first mid-sized hospital in Pakistan to opt for buying vs. building a solution. Not only are these off-the-shelf solutions available in Pakistan, there are System Integration experts in country who can help a hospital deploy and maintain these. Here it should be realized that these are viable options for the private sector given that the investments when measured against the advantages such as cost-control, error-reduction and efficiency enhancement appear nominal. However when public sector finances are taken as a denominator, the value of these approaches in terms of wide scale application and the benefits gained in terms of improving health outcomes vis-à-vis costs incurred are not clear yet. Then again there are issues relating to how technology can be – bought and – introduced into hospitals, which are being made autonomous; this highlights issues relevant to the terms of reference of autonomy and the manner in which they impact unified technology applications, which is what appears to be the most cost-efficient.

The third area where technology can play a major role in health is in the area of health information systems. Pakistan currently has many sources of health information: the Health Management and Information System (HMIS), the management information systems of various public health programs, standalone surveys, mortality projections, population-based surveillance mechanisms and the acute epidemic reporting and surveillance system are all potential sources of health information. This notwithstanding, there are major gaps in information gathering, its collation and reporting and it is here that technology should be leveraged as a priority. For instance in relation to HMIS the speed and access to inter-connectedness can obviate delays in the transmission of data, enhance the quality of data and software applications can improve modeling projections. In addition central data management software can revolutionarize data management and information deliverables which are critical to bridging the data-information-evidence-policy loop. The application of technology for strengthening health information should receive careful attention given the strong case for institutionalizing health information as a priority at a health systems level.

The fourth area of application relates to e-learning. In Pakistan, 70% of the health care delivery is through private sector for which there is no program for Continuing Medical Education/Training (CME). Training activities for the public sector health care providers are sporadic and do not conform to contemporary health care needs. On the other hand, the boom in information technology in the last decade has dramatically improved communication in Pakistan. In particular the recent introduction of Wireless loop technology (CDMA), must be capitalized upon for improving health outcomes given its outreach in remote areas, lower cost, high speed, which allows the transmission of heavy data files and transfer of images and voice files and flexibility to enable local language software to be utilized for purposes of education. Within this context, use of rugged versions of the handheld computers capable of wireless local data collection/information dissemination can revolutionize connectivity with physicians and non-physicians health care providers in the far flung areas – an opportunity, which must be leveraged for physician and patient education.

Lastly, yet another application of technology is in the area of creating a central health data repository and maintaining national health records. This becomes even more important as we move towards social health insurance which will require precise identification of records amongst other things. This may technically be possible in Pakistan given that two out of three requirements to develop a central health data repository are already in place: a central repository of *identifiers* exists in the shape of NADRA and a central repository of *providers* exists in the shape of PMDC. However in order to meet the third requirement, Pakistan will have to go towards adopting common data standards such as the internationally recognized HL-7. This raises the policy question relating to the Pakistani Government's commitment to enforcing consistency in data standards, complying with prescribed international obligations and publishing minimum data standards which can then be called the Pakistani HL-7 standards.

Clearly technology has wide application in health from which it cannot be extricated. However the key question in Pakistan at this point relates to whether we have the evidence of viability and cost effectiveness of these interventions? And it is here that based on the existing experiences, many lessons for generalization can be drawn. However in terms of a way forward at a policy level, it is important for the government to allocate resources for e-preparedness at an institutional level so that viable technology solutions can be arrived at for the health sector.

It is imperative that as the market dynamics continue to bring technology to the forefront and lead to the development of relatively elaborate – by developing country standards – telecommunications infrastructure within the country, the social sector – and health in particular – must benefit from this opportunity. The challenge however for the Government to address is to set thresholds based on equity and ensure through an unbiased regulatory role that the market does not overplay considerations of outcomes – drawing that line is not going to be easy.

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