infoDev

Framework Paper Summary

Connecting people, improving health: the role of ICTs in the health sector of developing countries

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This framework paper provides a 'snapshot' of the type of information and communication technology (ICT) interventions that are being used in the health sector, and the policy debates around ICTs and health. It draws from the experience of use in both the North and South, but with a focus on applicability in the South to identify the most effective and relevant uses of ICTs.

The paper describes the major constraints and challenges faced in using ICTs effectively in the health sector of developing countries. It draws out good practice for using ICTs in the health sector, identifies major players and stakeholders and highlights priority needs and issues of relevance to policy makers. The paper also looks at emerging trends in technologies that are likely to shape ICT use in the health sector and identifies gaps in knowledge.

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For the purposes of this paper, ICTs are defined as tools that facilitate communication and the processing and transmission of information by electronic means. This definition encompasses the full range of ICTs, from radio and television to telephones (fixed and mobile), computers and the Internet.

This paper sees health as a complex interaction of biomedical, social, economic, and political determinants. It places the discussion of health firmly in the poverty and development debates and pays particular attention to how ICTs can best be used to move towards achievement of the Millennium Development Goals (MDGs), as part of poverty reduction strategies and in order to improve the health of the most poor and vulnerable people.

There has been considerable international discussion about the potential of ICTs to make major impacts in improving the health and well being of poor and marginalized populations, combating poverty, and encouraging sustainable development and governance. Used effectively ICTs have enormous potential as tools to increase information flows and the dissemination of evidence-based knowledge, and to empower citizens. However, despite all its potential, a major challenge is that ICTs have not been widely used as tools that advance equitable healthcare access. A critical mass of professional and community users of ICTs in health has not yet been reached in developing countries. Many of the approaches being used are still at a relatively new stage of implementation, with insufficient studies to establish their relevance, applicability or cost effectiveness (Martinéz, et al, 2001). This makes it difficult for governments of developing countries to determine their investment priorities (Chandrasekhar and Ghosh, 2001). However, there are a number of pilot projects that have demonstrated improvements such as a 50% reduction in mortality or 25-50% increases in productivity within the healthcare system (Greenberg, 2005).

The examples in this paper show that ICTs have clearly made an impact on health care. They have:
- Improved dissemination of public health information and facilitated public discourse and dialogue around major public health threats
- Enabled remote consultation, diagnosis and treatment through telemedicine
- Facilitated collaboration and cooperation among health workers, including sharing of learning and training approaches
- Supported more effective health research and the dissemination and access to research findings
- Strengthened the ability to monitor the incidence of public health threats and respond in a more timely and effective manner
- Improved the efficiency of administrative systems in health care facilities.

This translates into savings in lives and resources and direct improvements in people's health. In Peru, Egypt and Uganda, effective use of ICTs has prevented avoidable maternal deaths. In South Africa, the use of mobile phones has enabled TB patients to receive timely reminders to take their medication. In Cambodia, Rwanda, South Africa and Nicaragua, multimedia communication programmes are increasing awareness of how to strengthen community responses to HIV and AIDS. In Bangladesh and India, global satellite technology is helping to track outbreaks of epidemics and ensure effective prevention and treatment can reach people in time.

Experience demonstrates that there is no single solution that will work in all settings. The complexity of choices of technologies and the complexity of needs and demands of health systems suggests that the gradual introduction, testing and refining of new technologies, in those areas of health care where there is a reasonable expectation that ICTs can be effectively and efficiently used, is more likely to be the successful way forward

Some innovative leaps may also be possible as technology is evolving rapidly. Wireless applications, increased use of mobile telephony and combinations of technology working together are some of the trends identified in this paper that suggest new opportunities.

The paper concludes that opportunities do exist for the use of ICTs in the health sector of developing countries; however a number of issues must be carefully considered in each intervention and setting:

- To what degree is the health sector structure and the national regulatory framework conducive to problem-oriented, interdisciplinary, rapid-response collaborative technical work and to implementing the political, regulatory, and managerial tasks required to address multifaceted and complex technological problems?
- Have a vision, goals, action plan and potential outcomes and benefits been clearly defined?
- Are there mechanisms for coordinating action led by the public sector, but in a way that links public, private and social efforts and engages with diverse stakeholders to speed the development and use of priority ICT solutions?
- Are there incentives for telecommunication sector reform processes?
- Are data-related standards and a regulatory and legal framework in place?
- Are there mechanisms for developing the capacity of health workers, other intermediaries and community members to make the most effective use of the ICTs available and to develop content that is relevant, applicable and culturally appropriate?
- What options exist to ensure continuity and sustainability of ICT projects and programmes in terms of finance flows, public-private partnerships and building on existing information and communication channels and resources?

Knowledge Gaps

The paper highlights several major areas where not enough is known and where further experimentation, research and analysis are needed, including:
- how to move from proof of concept to large-scale implementation in a range of different settings?
- how to evaluate systematically and coherently the impact of the use of ICTs on health?
- how to share information and experience and coordinate efforts (at national, regional and international levels) around the use of ICTs in the health sector?
- what can be done to strengthen the role of and build the capacity of intermediaries?
- how to develop local content that is relevant, appropriate and practical?
- how to strengthen organisational and national human resources, awareness skills and leadership to champion the further development of ICT use in the health sector?
- how to enable the voices of those most affected by poor health to be heard?
- how to implement the range of standards and a regulatory and legal framework that is conducive to the development of a vibrant ICT sector that responds to and supports social development processes?

These questions help to set out an agenda for future action to enable ICTs to contribute to efforts to improve health and to achieve the health related Millennium Development Goals.

Checklist

Checklist for the introduction of effective ICT programmes in the health sector
1. Has a local needs assessment been carried out and is the technology being used the simplest that can do the job required?
2. Is the local capacity available to use the technology effectively and, if not, is there a way of strengthening that capacity built into the programme planning?
3. Have the beneficiaries, end users and/or local communities been involved in the development of the programme, consulted on the approach and technology being used and committed to the approach?
4. To what degree does the approach and technology build on and strengthen existing information, knowledge and communication systems?
5. What plan is in place to monitor and evaluate the programme in a way that improves the quality of interaction and dialogue among the various stakeholders, and in a way that enables improvements and adjustments to be made to the programme easily?

12 Key Lessons

12 key lessons are evident that can be used to guide future work.

1. Technology is not an end in itself, but is a tool to enhance existing work, strengthen existing systems, achieve broader health and development goals and meet locally determined needs.
2. Successful inclusion of ICTs in ongoing health programming depends on the active involvement of beneficiaries and end users from the beginning in determining information needs, type of content and the most appropriate technology to use.
3. Local conditions determine success. Therefore, the choice of ICT tools in the health sector should depend on local availability and access, whether it is the Internet, radio, portable computers, video, television broadcasts, newspapers or anything else that is being used. Locally available technical solutions should be prioritised.
4. The simplest possible technology solution is likely to the most appropriate, user friendly and sustainable. The use of any technology should build on and complement information and communication technologies already being used.
5. No single technology will be suitable for all situations. Innovative and creative combinations of old and new ICTs will provide added value and new possibilities.
6. Capacity development and training components need to be included in all ICT initiatives. They should build on existing knowledge and help to strengthen the local ICT skills market.
7. Developing local and international multi-stakeholder partnerships supports communities to become more self-sufficient through capacity enhancement, and by building on existing formal and non-formal communication networks.
8. The enabling environment is crucial to providing information and communication services, innovation and entrepreneurship and free flow of information. The infrastructure required by the technology being used needs to be in place, or in the process of being put in place.
9. Regular monitoring and evaluation of impact generates successful use of ICTs. Incorporating plans for monitoring, evaluation and impact assessment into interventions ensures critical evaluation of efforts and adaptation as interventions develop. This makes use of the important communication principle of feedback and provides opportunities to involve the beneficiaries and end users in continuous dialogue about how the programme is progressing.
10. Sharing learning and disseminating experience by linking up with others doing similar work helps to design ICT interventions so they reflect an understanding of the different ways people learn, communicate and use information.
11. Addressing the needs of the poor and most marginalised, particularly women and girls is vital. Gender considerations should constantly be applied when undertaking an ICT activity
12. A clear and expressed plan for sustainability ensures that capital replacement and operating costs are identified up front as well as ICT infrastructure requirements and capacity to maintain the programme and its impact.

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