Using ICT in the Health Sector

IICD's health projects are principally aimed at improving the health of populations in small urban centres and remote rural areas through ICT. It is predominantly in these areas, where a vicious circle of poor health, inequality and social exclusion prevent people from participating in other aspects of society that can improve their quality of life. Improving health in the community, rural access to resources and the qualitative improvement of basic medical services that are needed to tackle these adverse conditions, are central to IICD's health programmes. IICD is currently supporting 24 projects in the health sector. We are reaching around 55,000 medical workers, of whom 67% are women and approximately 830,000 beneficiaries, 82% of whom are located in rural areas.

Reducing an unhealthy distance

The starting point of our health programmes is the improvement of healthcare services using ICT. Improving information channels in rural communities can have an enormous impact on diseases such as HIV/AIDS, malaria, diarrhoea and water-related illnesses, all of which are continuing to have a devastating impact upon the health of the rural populations in developing countries. In addition, by improving information flows the projects we are supporting are helping to provide communities with information on issues such as family planning, prenatal and maternal care.

Health worker at a local hospital in Mwanza. HMIS project. Tanzania.

Aside from empowering remote individuals and communities in this way, it is also crucial to then provide a connection to knowledge and expert diagnoses. In Mali, for example, there are 11 radiologists, of which only one works outside of the capital, Bamako, serving a population of 15 million, spread across an area the thirty times the size of The Netherlands.

IICD has been helping to tackle these realities in several ways, most of which have already shown to have a direct impact on the quality of health amongst rural populations. One way has been through peer-to-peer exchange among health professionals; connecting isolated doctors to normally hard-to-reach expertise in larger urban centres (see projects below). The other has been through Continuing Medical Education (CME), which can motivate and equip health workers with the knowledge they need and thus tackle the human resource shortage in the rural health sector (see projects below).

Underpinning these efforts, there is also a need to address issues of inaccurate, missing, or unavailable information. Hindering numerous locally developed health initiatives is an inability to capture, store manage and access accurate health information and patient records. Developing an information system that can accurately capture information on, for example, reliable blood donors can simultaneously improve the level of repeat blood donors - something identified by the WHO as a key strategy to ensuring blood safety – and improve communication and coordination between hospitals that require large quantities of donor blood.

What are we targeting?

All IICD's sector programmes, at project level, are focused on one of three key goals. Firstly, improving the competences of the medical worker: or health practitioner. In practice, this can mean through ongoing

training or access to specialized expertise and knowledge. Secondly, improving the quality of the medical product or service. Improving the tools with which data and information is stored, accessed, collected and disseminated has been proven to have an enormous impact on the quality of healthcare service delivery. Lastly, improving efficiency in order to free up the health worker, enabling them to focus on their primary task.

How are we supporting the heath sector?

Improving access to information for patients and/or people in the community

This can involve health education and promotion and disease prevention using radio, Internet or television in the appropriate location, transmitting the appropriate content, in the appropriate language.

Health Child – Uganda

Health Child has the goal of promoting child health through the reduction of child illness and mortality. It focuses on preventing the occurrence of illnesses among children including malaria, Acute Respiratory Infections (ARI), diarrhoea, and anemia, amongst others. The project will consist of a health service to spread information about health directly within the community and an ICT component, in which community representatives are trained, improving their ability to access to relevant health information via ICT tools including the internet, CD Roms and television. The project involves around 100 medical workers, reaching approximately 10,000 mothers and their children.

Improving the management of and access to information and knowledge

Health data is arguably one of the most important aspects of effective health care intervention. We provide support in three areas:

a. Telemedicine: can be an effective tool in the delivery of health care services, improving the delivery of health care where distance is a critical factor. Information and communication technologies are used for the exchange of vital information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care

providers, all in the interest of advancing the health of individuals and their communities (WHO, 2004).

Teleradiology via the internet
Mali

IICD assisted SOMIM (Société Malienne d'Imagerie Médicale) with setting up internet connection between the hospital Point GP in Bamako and three hospitals in the rural areas of Timbuktu, Mopti and Sikasso to experiment with teleradiology. The "IKON" project provides a solution for the lack of trained radiologists in rural hospitals, by offering the possibility to send or receive x-ray scans and diagnosis over the internet. The project, which is now being joined by ESA and TNO to help further the implementation of the project, has involved approximately 40 doctors and 1000 patients , a figure which is set to increase considerably over the coming year.

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b. Professional development and Continuous Medical Education (CME): although health staff often works in rather isolated areas it is crucial to be kept up-to-date with the latest news. Therefore tools like Internet, audio-conferencing, CD Roms and Personal Digital Assistants can help to keep health staff informed and allow health staff in turn to get access to knowledge and information.

Promoting Continuous Medical Education among Rural Health Workers - Uganda

The project aims to help improve health care delivery through continuous medical education (CME) for rural health workers. The major focus of the project is on gathering and repackaging high quality health information, enhancing communication for increased interaction, training in the use of basic ICTs and continuous monitoring and evaluation of CME activities. The project, which is co-sponsored by Cordaid and IICD, is implemented by Uganda Martyrs University, Faculty of Health Sciences, and the three hospitals of Itojo in Ntungamo district, Nkozi in Mpigi district and Mutolere in Kisoro district. The project involves 300 medical workers reaching approximately 2100 beneficiaries.

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c. Health, hospital and patient information: accurate and timely data helps to plan and prepare health policies. An efficient information system also has the potential for better coordination, transparency and accountability. The health sector in most developing countries suffers from inefficient management practices due to a number of factors, including a shortage of staff and high turnover rates, the low quality of information from health facilities and the long time needed from health staff to collect the data.

> ### District Health Management Information Systems (D-HMIS) Tanzania
> The implementation of a District Health Management Information System (HMIS) aims to improve the ability to collect, store and analyse accurate health data, increase data accuracy and effectiveness of intervention, increase accountability, and improve tracking of health trends in the district. Information on patient registrations, diagnoses, treatments, lab tests, billing and pharmacy records are being digitalised. The HMIS involves approximately 90 users and reaches around 900 beneficiaries and is being rolled out in eight hospitals and four medical offices. The project includes ICT training and change management both at facility and district level.

Support policy-makers with creating a conducive policy environment
Health is a key sector for development and plays a crucial role in poverty eradication. Therefore, a concerted and guided use of ICT in the health sector is crucial for a more cost-effective and better performing sector, which avoids duplicating activities and provides quality services.

> ### ICT Policy and Strategy for the Health Sector - Uganda
> The National Telemedicine / Telehealth Steering Committee of the Ministry of Health is developing an implementation strategy for the ICT Health Sector Policy to facilitate efficient information and communication services across the entire sector. Priority areas are access to health services, healthcare delivery, district health management, telemedicine, and Continuing Medical Education (CME). The strategy will function as a guide for future investment in ICT in relation to its particular benefits in the sector.

Parents and children who participate in the Health Child project. Uganda.

Impact of the Health projects
Across the organisation, IICD is currently supporting 24 projects in the health sector: reaching around 60 regional and district-level hospitals and health centres, and their outreach is rapidly extending to other institutions. Users are estimated in the region of 55,000, of whom 67% are women. Beneficiaries have been counted at approximately 830,000 of which 82% are located in rural areas.

The impact of IICD's health projects can be seen through a number of key indicators. The Monitoring and Evaluation (M&E) data collected from the outset looks at 4 indicators which give a strong indication of the effectiveness of our programmes, especially in terms of empowerment, economic impact and impact on the sector as a whole. The table below provides the overview of the most important impact figures for the health projects averaged over the 3 years ending in 2007, and the meaning behind the indicators is as follows:

Awareness
This measure gives an indication of whether end-users perceive an increase in general ICT possibilities, but more importantly, information relevant to the health sector. The IICD projects focusing on improving access to information for patients or people in the communities have as their principle aim to raise awareness in these areas.

Empowerment
This measure gives an indication of whether end-users perceive a change in terms of self-confidence, changes in terms of their influence on decision-making. They also indicate whether users see a change in their social status and whether there have been

any noticeable changes in their behaviour as a result of the project.

Empowerment is a crucial indicator for all interventions in the health sector, and more in particular for health staff who have extensive training to use ICT to improve the management of and access to information and knowledge.

Economic Impact
This measure gives an indication of whether end-users perceive an improvement in their overall levels of productivity; whether they are seeing an improved position for themselves in the market; and whether there are marked reductions in costs incurred by patients.

The projects focusing on Continuous Medical Education not only aim to improve the skills and knowledge of health staff but also to improve their job description and productivity. Also the telemedicine projects and management information projects could have an economic impact by lowering the costs for patients by more effective functioning of the health facility.

Impact on the health sector
This measure gives an indication of whether end-users perceive changes in efficiency and an overall strengthening of the health sector; a change in the quality of health education to public; an impact on the professional development of doctors and nurses; as well as changes in terms of infrastructure relevant to the health sector.

Analysis of results

Awareness scores are very high, which can be explained by the fact that the health programme is still new in most countries when compared with, for example, the livelihoods programmes. What is often seen in the first years of programme implementation is that people feel very excited and eager to learn about and work with ICT for health and that after this initial period, enthusiasm will gradually lesson, albeit only slightly.

More than 60% of the project users indicated that they feel empowered. It is interesting to see that empowerment tends to be a rather stable indicator over time and across different (groups of) projects. Economic impact scores relatively low, as it is very difficult for the health staff, though having better skills and increased knowledge, to see their actual personal job description as

having improved. It can also be expected that the real economic effects of a more highly skilled health worker will only be seen in the longer term.

The impact on health care of almost 55% is also relatively high, and may be explained by the fact that the statements used are a good measure to capture progress in the health sector, for example: *"this project has resulted in more customised patient records" or "the project has resulted in better health care"*. Important to point out here though, is that the more mature projects also show a higher level of impact, indicating that it may take some time before the impact on health care becomes "visible".

Impact Health projects July 2007- June 2008
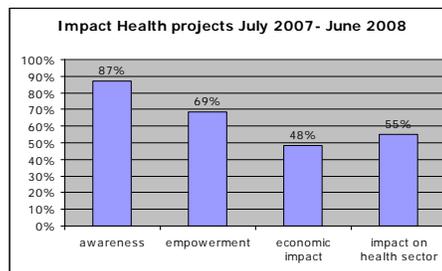
More information

For further detail on any of information contained in this document, or more general information about IICD's work visit our website: www.iicd.org

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