

fast facts

Project: Capacity Building of Lady Health Workers in Rural Mardan, NWFP through the use of ICT based Tele-healthcare

Lead Organization: School of Electrical Engineering and Computer Science National University of Sciences and Technology (NUST)

Country: Pakistan



situation

Despite the steady improvement in the Pakistani health sector over the last few decades, the condition of healthcare in Pakistan is not yet considered to be satisfactory. Not only do Pakistani health providers suffer from a lack of funding which fails to fulfill even basic public needs, but there is also a distinct shortage of doctors available to people living in rural areas of the country. Furthermore, Pakistan has one of the highest infant and maternal mortality rates in the world, which is further exacerbated in rural areas.

solution

The WHO estimates that 70% of Pakistanis never get to see a doctor in their entire life and instead rely on Lady Health Workers (LHW) for their medical needs. These LHWs are government-trained healthcare workers who operate out of their homes in rural areas of Pakistan providing primary and maternal care. There are over 100,000 such healthcare workers in Pakistan, each responsible for a community of about 1,000 in their neighborhood. Once trained, LHWs are sent to communities to work; they usually operate in complete isolation with little or no support from any medical community or a doctor. This makes their task of providing community healthcare cumbersome. These LHWs are often expected to treat all sorts of diseases and illness, which are beyond their training. At times, LHWs need an opinion of a specialist for better diagnoses. Unfortunately for most of the developing world, including Pakistan, these specialists are simply out of reach.

This project was motivated by the belief that that the percentage of diseases and deaths could easily be decreased through early diagnosis, awareness, and affordable regular treatment for under-served communities through proper utilization of ICT technologies made available to LHWs. As such, the goal turned to devising newer and more effective ways to bring about a rapid change in healthcare services for rural communities by enabling these LHWs greater access to the information necessary to make critical decisions more quickly.

The Jaroka Telehealth system was developed to provide an Internet-based and mobile ready tele-medicine network to connect clinicians and LHWs in Mardan with specialists in major cities of Pakistan and the Association of Pakistani Physicians of North America (APPNA) in the United States. The system consists of five main modules: an open source Software for e-patient data and records, SMS and MMS Services, a data portal for sharing patient medical records with APPNA doctors for expert advice, publications to help build the capacities of LHWs, and the construction of a Pakistan Health Grid/Map to track disease incidence.

The project utilizes a mobile platform to extend tele-healthcare services through the use of voice communications, Short Text Messaging (SMS), Multimedia Messaging (MMS), General packet radio service (GPRS), and satellite VSAT communications to quickly and efficiently extend the reach of medical advice available to LHWs in the field. This flexibility allows information to be shared in the manner most appropriate for any individual LHW in need of assistance, and also enables LHWs to download short

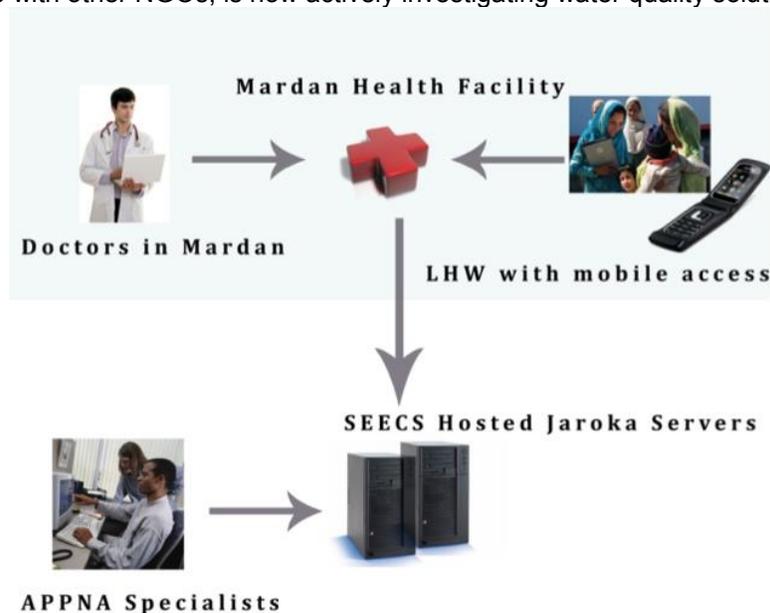
audio and video files to keep them updated with the latest developments in the medical field. It is anticipated that these multimedia files will act as quick training sessions for LHWs in the field as well.

The team hopes to replicate their system in other rural and urban areas of Pakistan in order to improve overall healthcare conditions in Pakistan. Since the initial rollout, the team has been contacted by medical teams in Mera Bhagwal (another village in Pakistan) as well as communities in Haiti to assist them in replicating this project in their areas. This project has also sparked the interest of corporate and social responsibilities divisions of local companies, at least one who intends to replicate this system in Karachi's urban slums. The team believes replication of Jaroka at different sites will lead to more affordable and effective healthcare in different regions across the country and worldwide.

broader impact

This effort has played a significant role in providing better healthcare to Pakistan's rural communities. More than 60,000 patients with different diseases were treated using this new protocol, of which 61% were female patients. This increase in the number of female patients is a strong indicator of the success and cultural appropriateness of the Jaroka system.

In addition to the actual treatment provided, the team was able to collect a significant amount of data that may prove useful to other health and service organizations. The team is further analyzing this data to find patterns of disease spreading throughout the country. Among their most important findings was the fact that most common diseases prevailing in rural areas are due to the contaminated water supplies. The team, in partnership with other NGOs, is now actively investigating water quality solutions for these areas.



Jaroka system schematic

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