Supporting eradication of maternal-child malnutrition in Developing Countries - A Case from Nicaragua Scenario

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World Health Organization actively stresses the importance of health, nutrition and well-being of the mother to foster children development. This issue is critical in the rural areas of developing countries where monitoring of health status of children is hardly performed since population suffers from a lack of access to health care. The aim of this research is to design, implement and deploy an e-health information and communication system to support health care in 26 rural communities of Cusmapa, Nicaragua. The final solution consists of an hybrid WiMAX/WiFi architecture that provides good quality communications through VoIP taking advantage of low cost WiFi mobile devices. Thus, a WiMAX base station was installed in the health center to provide a radio link with the rural health post "El Carrizo" sited 7,4 km. in line of sight. This service makes possible personal broadband voice and data communication facilities with the health center based on WiFi enabled devices such as laptops and cellular phones without communications cost. A free software PBX was installed at "San José de Cusmapa" health care site to enable communications for physicians, nurses and a technician through mobile telephones with IEEE 802.11 b/g protocol and SIP provided by the project. Additionally, the rural health post staff (midwives, brigade) received two mobile phones with these same features. In a complementary way, the deployed health information system is ready to analyze the distribution of maternal-child population at risk and the distribution of diseases on a geographical baseline. The system works with four information layers: fertile women, children, people with disabilities and diseases. Thus, authorized staff can obtain reports about prenatal monitoring tasks, status of the communities, malnutrition, and immunization control. Data need to be updated by health care staff in order to timely detect the source of problem to implement measures addressed to alleviate and improve health status population permanently. On-going research is focused on a mobile platform that collects and automatically updates in the information system, the height and weight of the children locally gathered in the remote communities. This research is being granted by the program Millennium Rural Communities of the Technical University of Madrid.

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