M-HEALTH SYSTEM WITH FOCUS ON ANTENATAL CARE FOR RURAL AREAS
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BACKGROUND:

Developing countries’ lack of healthcare facilities particularly in rural areas has been the major problem for their population. In Pakistan, 65% of population lives in rural areas. The patients from these areas are unable to interact with the health specialists for their particular diseases. The complications faced by mothers during pregnancy are among the major issues in the health sector of rural areas. Due to lack of gynecologists in rural areas, severe problems occur resulting in even deaths of mothers and fetal. Despite having an infrastructure of Lady Health Workers (LHWs) for pregnant women of rural areas, we still face the problem of collecting information about the patient. This information is even rarely observed by any gynecologist. This lack of information and communication has resulted in most unfortunate situations among pregnant women of villages in many instances.

OBJECTIVES:

- To develop a health monitoring system using Information & Communication Technology (ICT) that could boost the services for health to the rural population.
- Enhanced level of information sharing while maintaining medical records of rural and impoverished patients in order to provide efficient health services.
- Helping in devising reliable medical strategies with the help of knowledge extraction which will be achieved from collection of reliable and accurate data.

METHODS:

We have proposed and developed an application for LHWs and gynecologists using Personal Data Assistant (PDA). LHWs are trained to fill the patient information on the PDA which is transferred to a computer server. Clinical Decision Support System (CDSS) analyzes this data and automatically sends feedback to the LHW. In case of problem, the case is forwarded to the gynecologist on their PDAs. These gynecologists send their feedback to the respective LHW who then treats the patient. Another feature of this system is that the system maintains this electronic data of the patients for future use. This helps in long term health maintenance of the patients while as well as for research purposes.
RESULTS:

The significant results achieved during this phase so far:

- System’s reliability has been established since LHWs used it to send the data of more than 200 pregnant mothers from remote location and gynecologists gave their feedback.
- The system was able to successfully process and store data of all these patients for knowledge extraction.
- A data reasoning engine extracts all relevant information and alerts specialists about severe cases that ensure on time patient’s treatment. It also recommends responses such as a follow up visit or a home call.
- The system also sends suggestions directly to PDA of LHW for immediate patient care, thus providing quality antenatal care at the door step of patients.
- Overall time required to train and use the system was experienced to be drastically low due to its simple and easy to use interface.
- The system was found stable against any corruption in data due to system failure are any unauthorized attacks.

CONCLUSION:

This system is very valuable for not only the treatment of patients from remote areas but for future health maintenance and research purposes. We believe that this system can be expanded to whole of Pakistan in order to provide efficient health services.

LEARNING OBJECTIVES:

The overall aim is to develop a fully automated, efficient and reliable national health and diagnostic system for the people of Pakistan.