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Wireless Communication Technology to Support Rural Primary Health Care Management In South Africa

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Abstract

The aim of this study is to investigate the potential of wireless communication technology to improve in rural primary health care services. A cell-phone-based patient tracking system for use by home-based carers and a basic electronic clinic patient record system are being implemented in two sites. Summary data from the clinic patient database is transmitted wirelessly to a central database. Preliminary results indicate that electronic information systems have the potential to improve communication between clinic staff, home-based carers and sub-district managers.

Keywords:

primary health care, wireless communication technology, patient information system

Introduction

Primary health care (PHC) providers in rural clinics and those providing home-based care have difficulties in reporting and receiving feedback from management due to poor communication infrastructure and the use of manual systems to register patients' details. This study investigated the effect of implementing electronic patient record systems in two rural sites in the North West Province of South Africa (SA).

Description of the project

Two systems have been implemented: The patient tracking system (PTS) for use by home-based carers (HBCs), is cell-phone based, and the basic electronic clinic information system (CIS) is implemented on laptop computers at clinic level. A summary record of each patient clinic visit is included in the clinic database on the laptop. The data for the routine monthly report for the DHIS (district health information system) is transmitted wirelessly from the clinic to a central database via the cell-phone network, using a triband GPRS PC radio card. The PTS supports both reporting on all visits to chronically ill patients by home-based carers, and management of the home based care providers. Data from both systems is accessible via the Web to appropriate sub-district management personnel.

At initial implementation the two electronic systems operated separately, with data being consolidated in separate centralised databases. Data from the PTS and the CIS will be combined in a common database at clinic level, using the patient clinic number as the key. This will allow the clinic personnel to access full details of clinic and HBC services of patients.

The key users of the CIS at the clinics engage in diverse roles: nurse professionals can update patient data, and collate and compile data to create management reports. Data capturers transferred the details of all the patients who were registered in the manual clinic records to the electronic database on the laptop. The data capturers will be phased out as health professionals take control and operate the integrated system. HBCs enter data on patient visits on their cellphones and it is transmitted to a central database. The local sub-district information officers provide ongoing support to the system users.

Results and discussion

Ongoing monitoring of the operation and use of the electronic systems has led to significant updates of both systems. Communication costs are reasonably low. The implementation of the PTS has resulted in standardisation of the reporting on HBC visits. Experiences to date indicate that electronic information systems have the potential to improve communication between clinic staff, home-based carers and sub-district managers, and that wireless communication technologies can help to address infrastructure limitations.

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