

**A STUDY OF RURAL TELEMEDICINE SYSTEM IN WAJIR, MANDERA
AND IJARA DISTRICTS, KENYA**

ARGATA GURACHA BORU GUYO

JKUAT LIBRARY

**A thesis submitted in partial fulfillment for the Degree of Master of Science
in Applied Epidemiology in the Jomo Kenyatta University of Agriculture and
Technology**

2007

Abstract

Northeastern Province of Kenya is a vast semi arid area and sparsely populated. There are three medical referral centers in the three districts, which are staffed by qualified doctors, namely: Wajir and Mandera District Hospitals and Garissa Provincial General Hospital. The rest of the health facilities are widespread; some as far as 200 kilometres from the referral areas. Telecommunication infrastructure is available only at the district hospitals. Flow of information between the peripheral health facilities and the referral centres is one of the major challenges to general health provision in this region.

Beginning in mid 2004, most of the health facilities in North Eastern Province were connected with high frequency (HF) radio communication as an initial form of telemedicine. This is a voice-based two-way radio communication.

This study was designed to determine the role played by HF radio communication as a form of telemedicine on health information flow in Wajir, Mandera and Ijara Districts.

This is a descriptive *cross sectional* study where quantitative and qualitative data were collected one year before and after the introduction of HF radio communication. A structured face to face questionnaire was administered to the officer in-charge of the health facilities in the three districts. Data collected were entered and analyzed using *Epi info version 2002*.

A total of 34 (61%) out of 56 health facilities all with HF radio installed were visited in the three districts. On a scale of 1-10, respondents felt that the ease of consultation was 5-7 (83%) with a mean score of 5.9 per facility where 1 is very

difficult and 10 is very easy. The range was high in health centres and sub-district hospitals (7-9) compared to dispensaries. On average 15 medical consultations were made per facility per month with the mean being higher in health centres (17) than dispensaries (11). The commonest means of surveillance and immunization data transfer was by informal messenger via public means (52.9%). Currently all the facilities use HF radio for communications. It took more than three days in 19 (55.6%) health facilities for data transfer to the District Headquarters before introduction of the HF radio system in the province, and now the information flow is instant. There has been a marked improvement in completeness and timeliness of the reports to the District Headquarters since the introduction of HF radios. A total of 356 cases were referred to the District hospitals from the period 2004-2005 compared to 177 cases in the period 2003-2004, representing a two fold increase in referrals. Those considered being life saving were 290(81%), with Obstetric emergencies being the most referred cases. There were 27(79.4%) health facilities which were more than 100 kilometers away from referral centres. High Frequency radio system was used to alert referral centers about the impending patient transfer hence on average saving 4.7 hours in patient admission. In 97% (33) of cases the means of transport used for referral were hospital ambulances. The HF radio system were considered to be an effective and durable means of communication and has led to improved public health in Mandera, Wajir and Ijara districts.

In conclusion the study looked at HF radio system in Mandera, Wajir and Ijara Districts of Northeastern Province of Kenya. The HF radio system has improved