



Linking Rural Communities with Health Services: Assessing the Effectiveness of the Ambulance Services in Meeting the Needs of Rural Communities in West Africa

Project Location:	West Africa-Ghana/Nigeria (Katsina State)
Project Start Date:	June 2011
Project Duration:	18 months

Introduction:

It is increasingly accepted that poor physical access is reducing the effectiveness of measures to reduce maternal mortality in Africa.

The African Community Access Programme (AFCAP), funded by DfID, commissioned Transaid and its partners to undertake a research project in West Africa where investments had been made in ambulance provision. The project aimed to create an evidence base to understand the contribution that transport measures- such as ambulances- could make in addressing the Millennium Development Goals related to maternal mortality. The project was also commissioned to develop the knowledge and capacity across the region in the sustainable management of ambulance provision and develop appropriate guidelines to support that.

The main objectives of this project were to:

- develop a robust evaluation framework to understand the interaction between physical access and maternal mortality
- understand the impact that a well-managed nationally available ambulance service can have on the level of maternal mortality in rural Africa caused by poor physical access
- inform the management and development of national ambulance services in Africa

Methodology:

The project began with a systematic literature review to determine the scope of the existing literature and what is already known about the effects of non-clinical factors on maternal mortality.

The original idea was to undertake the fieldwork for this study in central Ghana. The vast majority of the development work for the survey instrument process was undertaken through a participative workshop in Accra in early 2012 with Ghanaian partners. However, it was decided that a new fieldwork site in West Africa should be selected. The North Nigerian state of Katsina was selected for the fieldwork and four Local Government Areas (LGAs) were selected from the 34 LGAs in the state.

Within each of the four LGAs, 10 Community-level Health Centres were selected to reflect relevant issues around which to focus the data collection efforts.

Fieldworkers were recruited from existing health facilities. They were trained in a 1-day session on the project and its objectives, how to complete the special referral form, the ethical consent required and the data collection and data entry process.

Data collection was undertaken in Katsina State, Nigeria, from mid-February 2013-mid March 2013 and 704 cases were surveyed across the 10 Health Centres and communities within each of the four LGAs selected.

Within each Health Centre, a fieldworker was recruited to record the details of all women giving birth who needed to be referred by the Health Centre for Emergency Obstetric Care due to medical complications to a higher level in the LGA Primary Health Care Centre. At each referral hospital, a research assistant was also recruited to sample and assess all incoming women with medical complications when giving birth.

All women who met the inclusion criteria were asked to authorise an informed consent form for them taking part in the study. Women were recruited after they received the necessary intervention and the data from their initial assessment was used to complete the data forms later.

If they consented, a special referral form was completed. This included:

- Personal Identification number
- A Vital Signs assessment of their condition at the point of referral
- A Glasgow Coma Score assessment
- Record of time of call made for emergency transport
- Record of actual time of departure from Health Centre

Once the patient was recovering, the fieldworker collected follow-up information, which included:

- A matching Subject Identification Number to the one on referral
- Socio-demographic data (age, household structure, assets, location and consent required for journey)
- Obstetric history

The data was collected on a regular basis and was checked by Transaid's National Consultant. The data was then entered and verification was undertaken using local knowledge and communication with fieldworkers at this stage.

Analysis was undertaken using SPSS analytical software. Descriptive statistics were produced and non-parametric Chi-Square tests were undertaken.

The dissemination of the outcomes of this study was a key part of the project. The project incorporated a series of activities that promote the communication of the research findings with practitioners and policy-makers in the health and transport sector, both within West Africa and internationally.

A workshop on 'Maternal Health, Physical Access and Ambulances' took place at the end of the project in Accra, Ghana (22-23 April, 2013). This involved an international audience of ambulance management specialists from 3 countries across Africa (Uganda, Nigeria and Ghana) as well as health sector policy-makers, development agencies and transport sector professionals.

Outcomes:

A rich data set was collected as a result of this study and there were considerable findings. These include:

- Amongst the women surveyed for this study, there was averagely a 1 to 2 hour gap between referral and reaching the appropriate referral facility. However, a significant number took between 4 and 7 hours to reach appropriate care. The majority of women reached their referral facility by motor vehicle or motorbike. Whilst ambulances and the Emergency Transport Scheme did contribute to just over 10 per cent of referrals transferred, journeys on foot made up a small but still worrying level
- The women surveyed in this study largely arrived at referral facilities in a 'good' condition according to their assessment using the Glasgow Coma Score. However, over 43 per cent were assessed to not have normal Vital Signs or that their Vital Signs were associated with being medically weak
- The study found that there was no statistically significant relationship between the Glasgow Coma Score of the women surveyed and how they travelled to the initial health facility or the referral facility or how long it took between referral and arrival at the facility
- However, the Vital Signs assessment showed a significant relationship between how long women took between referral and arrival at the facility and their respiration, blood pressure and urine vital signs
- There was also a significant relationship between how women travelled to the referral facility and their vital signs for respiration, neurological state, pulse, urine and temperature
- The study also found a significant relationship between how women travelled to their local health centre before being referred and their vital signs recorded for neurological condition, blood pressure, pulse, urine and temperature
- A set of Guidelines for setting up a National Ambulance Services was also produced (ref. separate case study)

Conclusions:

This project has added to the existing literature that seeks to understand the role that non-clinical factors play in maternal and neo-natal mortality and morbidity. It has added to Transaid's understanding of the significant role that poor physical access plays in delaying appropriate care for women with maternal health complication. It highlights the fact that delays in travel-time and delays in arranging for women to be referred to higher level facilities

in medical emergencies, as well as the types of transport available to women in such emergencies, exacerbates the health condition of women with medical complications. This impact on the health condition of women received at referral facilities makes the challenge in reducing maternal mortality faced by health professionals at these referral facilities in resource-poor environments even harder.

The project has shown that poor physical access does contribute to the poor health condition of women. This worsened condition will require greater skill, more equipment and drugs and increased capability of the health system than would otherwise be the case when access is good. How women get to referral facilities does make a difference and so investment in ambulance provision, communications systems and community-based emergency response will make a difference to health outcomes for women giving birth and their new-born.

Tools Utilised: Research protocol, Glasgow Coma assessment, Vital signs assessment, referral forms

Partners: Ghana Health Services, Ghana National Ambulance Service and Katsina MoH

About Transaid:

Transaid is an international UK development charity that aims to reduce poverty and improve livelihoods across Africa and the developing world through creating better transport. Transaid was founded by Save the Children and the Chartered Institute of Logistics and Transport. Our Patron is HRH The Princess Royal. Transaid specializes in the following:

- Building the capacity of public health authorities to provide effective, safe and cost efficient transport management systems to promote equitable access to primary health care services.
- Developing and improving logistics and supply chain systems to enhance the delivery of medicines, equipment and relief services to vulnerable communities.
- Promoting effective partnerships to support and enhance community participation in developing sustainable transport solutions in rural areas.
- Developing and delivering transport and logistics training and qualifications for public and private sector operators.

Transaid has the capacity and reach to lead projects throughout the developing world, but is equally capable of providing niche technical assistance to large scale health systems strengthening projects. Transaid maintains strong relationships with a number of leading international organizations including donor agencies such as DfID, DANIDA and USAID, and implementing organizations such as Health Partners International, Options Consulting, John Snow Inc. and Management Sciences for Health.

Contact:

Transaid
137 Euston Road, London NW1 2AA
United Kingdom

t: +44 (0)20 7387 8136

f: +44 (0)20 7387 2669

e: info@transaid.org

www.transaid.org

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