Zambia Bicycle Ambulance Project

Project Location:	Petauke, Katete and Chipata Districts, Eastern province, Zambia
Project Start Date:	2008
Project Duration:	2 Years

Introduction: In 2008 Transaid implemented a bicycle ambulance project to respond to the urgent need of rural communities to access health facilities in the three districts of Petauke, Chipata and Katete in Zambia's Eastern Province. The project saw the production and distribution of 40 bicycle ambulances. The project was funded by the Canadian International Development Agency (CIDA). The project was implemented in collaboration with a number of Zambian and international partners. Key to the implementation was the role of World Bicycle Relief, the lead partner. The bicycle ambulances were given to community care givers who had already received bicycles as part of the RAPIDS project (see the Partners Section).

The purpose of this project was three-fold; firstly to improve access to healthcare for community inhabitants in Zambia's Eastern Province, secondly to build capacity within Zambia's Eastern Province for the construction/maintenance of bicycle ambulances, and thirdly to develop a report which offers solutions to issues of rural access, highlights elements of best practice and makes recommendations to be endorsed by international organisations.

Methodology: Project execution splits into four stages; design, production, distribution, and monitoring and evaluation (M&E). Multiple designs were reviewed by internal and external partners and two were chosen; a Namibian design by Bicycle Empowerment Network Namibia (BENN) and the Zambulance/Disacare model from Jessica Vechakul (MIT) and Disacare with two different hitch types; one a low cost rubber hitch and the second a metal hitch.

The production stage was in two distinct phases:

1. Two weeks of production during the training of the field mechanics. This took place in Lusaka and 25 bicycle ambulances were produced
2. Final production phase by Disacare. A further 15 bicycle ambulances were produced over two weeks. The balloon tyre was used (a larger type of tyre). Trials showed that 26 inch tyres were optimum ones for the trailers, compared to 28 inch tyres on the bicycles.

Bicycle ambulances and ambulance logbooks were distributed together. The log books were used to collect data on bicycle ambulance use. Specifically, data was collected on the name of rider, journey date, time and duration, distance travelled and the nature of the illness being suffered by the patient.

Outcomes: Transaid established a specific monitoring and evaluation framework for this project, the aims of which were to:

- Develop a model of the project implementation process and identify key inputs, expected outputs and intended program impacts.
- Monitor the use of project inputs.
- Monitor the production of project outputs and the impacts they have on the pilot communities.
- Monitor and assess the effectiveness of the project implementation process.
- Monitor how effectively transport project outputs resulted in the intended short-term and long-term impacts and evaluate the extent to which these impacts can be attributed to the effects of the project.
- Evaluate the sustainability and replicability of the project.

The monitoring and evaluation system incorporated the use of interviews for communities and caregivers, log books to record bicycle ambulance use, and during the second M&E visit a community feedback session was executed. M&E comprised:

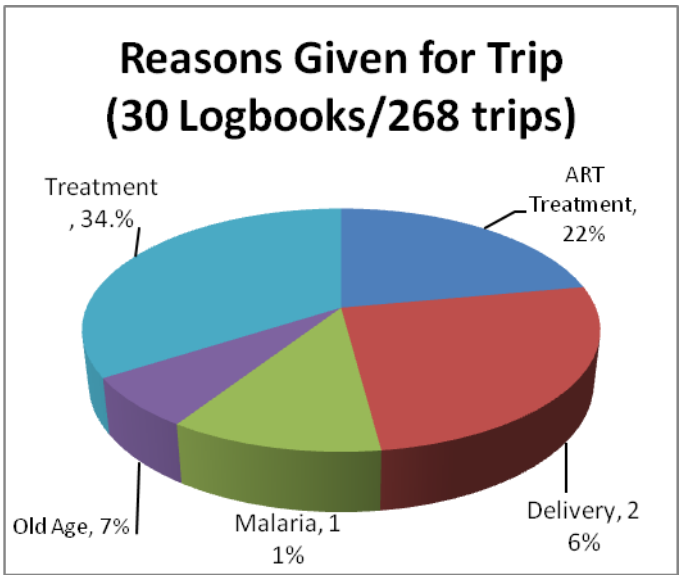
1. Collecting baseline data.
2. M&E Phase 1: Caregiver and client Interviews, analysis of logbooks, informal discussions with rural health workers (three months after distribution).
3. M&E Phase 2: As above but including community feedback sessions (12 months after distribution)

General M&E findings:

- Threads in the hitch need to be stronger if the ambulance is to be towed by different caregivers.
- Tools should be provided with the ambulance including a pump, first aid kit, and spanners.
- Need to provide a light for night riding.
- Reduced ambulance weight preferred.
- As well as high visibility vests, raincoats are needed.
- Metal plate on the stretcher was not strongly welded.
- The Namibian design is wider than a standard door frame causing problems when moving patients into health facilities.
- A basic suspension system would help reduce vibrations and bumps which might exacerbate a patient's condition.
- Availability of spares is an issue in some communities.
- Further stakeholder engagement is required to ensure that all parties can input into the use of the bicycle ambulance; traditional leaders (paramount chiefs. village headmen/women), social leaders, councillors, and other political leaders including area members of parliament).
- The Ministry of Health must take a leading role in sensitising women during ante natal care about the presence of the bicycle ambulances.

Log book data showed that the average distance travelled on the bicycle ambulance in one trip was 13.7km. The longest distance for one trip, in Katete, was 40km.

Conclusion: 18 months after distribution of the 40 bicycle ambulances, according to the data from 30 of the logbooks, the data showed that 268 return trips had been made in the previous 12 months – an average of nine trips per ambulance per year. The breakdown of these trips is:



As with data collected on previous M&E visits, anti retroviral treatment accounted for a significant proportion of trips. This can be attributed to the fact that the caregivers who were initially part of the RAPIDS project were formerly tasked with a role which focussed on the alleviation of suffering for peoples with HIV/AIDS. Such patients are too weak to attend treatment on their own and depended on care from community caregivers, as well as the mobility provided by the bicycle ambulance.

A significant finding was the large proportion of trips attributed to "delivery". This corroborates previous studies by Transaid and other organisations which show that maternal cases account for approximately one quarter of all trips undertaken by Intermediate modes of transport such as bicycle or motorcycle ambulances.

During the second M&E visit, 12 months after the distribution of the ambulances, nine bicycle ambulances were not running due to issues of lack of funds for maintenance. One ambulance which was in good condition was found to be lying unused due to community politics. This matter was brought to the attention of the district facilitator who agreed to pursue the issue and ensure its proper use. Other bicycle ambulances are operating normally and the main cost has been servicing the ambulances, replacing tyres, tubes and spokes.

One weakness identified was that in some cases the stretcher had broken due to manufacturing errors. The stretcher on the ambulance in Mzime had to be welded twice and currently there is a restriction of not allowing overweight persons**.**

The highest maintenance cost was 120,000 Zambian Kwacha (USD$30) while the lowest was 40,000 ZK (USD$10).

Tools Utilised: Bicycle Ambulance Video, M&E Framework

Partners: These included Disacare (a Zambian NGO), Design for Development, Bicycle Empowerment Network Namibia and the consortium partners from the RAPIDS project. RAPIDS (Reaching HIV/AIDS Affected People with Integrated Development and Support) was a consortium led by World Vision International in partnership with Africare, Catholic Relief Services, Expanded Church Response, Salvation Army, World Vision Zambia, and the Population Council. This is a six-year (2004-2010), US$57.5 billion programme

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.

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