



Summary

2005-Present **Dowa Safe Motherhood Programme**

10 eRanger Ambulances for EMOC referral
MOH funding

Objectives: Strengthen EMOC referral system
Reduce MMR by reducing referral delay
Make progress on MDG 4 and 5

Outcomes: Reductions in MMR
Reductions in NNMR
Increases in facility deliveries
Reductions in referral times

Recognition: Pan-African Health Awards 2006:
Runner Up, Public Sector Organisation

2001-2003 **Mangochi Pilot Project**

3 eRanger Ambulances
MOH and DFID funding

Objectives: Evaluate eRanger feasibility vis-à-vis 4x4 vehicles in:
Referral time, Sustainability, Costs and Acceptability

Findings: Cost-effectiveness (vis-à-vis 4x4s)
Better terrain capability
Reductions in referral times
Acceptability among patients



Malawi Maternal Health Overview – Selected Indicators (WHO, 2006)

Rural populations in Malawi remain under-served and under-resourced in maternal services. Transport scarcities within communities and public health-service portfolios are influential in shaping rural MMRs.

In those rural areas without eRanger ambulances, when EMOC referral is necessary, women experience considerable delay waiting for 4x4s to become available at the district hospital, travel out to the rural facility and then refer her back to EMOC services.

Avoidable delays in reaching EMOC, such as those caused by transport deficiencies, are well-documented as influential factors associated with preventable maternal deaths.

MMR: 1800 per 100,000 live births (2000) Lifetime Risk of Maternal Death: 1 in 7 (2004)

ANC attendance (+1 visit): 94% (2000) Fertility: 6.1 (2000-05)

Deliveries attended by skilled health worker: 60.5% (2002)

DOWA District Safe Motherhood Programme

A comprehensive programme addressing institutional weaknesses and women's health-seeking-behaviour to improve maternal and neo-natal health.

Operational environment:

500,000 population served by 16 rural health facilities, 1 district hospital (EMOC capacity), 1 rural hospital, one army hospital, one CHAM hospital (EMOC capacity). Rural health facilities lie between 14 and 96 km from free-to-use EMOC at Dowa district hospital. 2 main arterial roads run through the district, all other roads are hard-packed dirt roads, vulnerable to the rains and can be inaccessible to 4x4 vehicles.

Safe motherhood services and activities (prior to eRanger introduction):

The district health office was actively strengthening family planning, ante-natal services (including VTC), PMTCT, information, education and communication (IEC) and male championship to sensitise women, men and whole communities on maternal health and the importance of facility delivery.

eRanger introduction:

Having received driver and maintenance training from Ranger Production Company, in July 2005 Dowa put 10 eRanger ambulances into service, providing designated EMOC referral transport on-site at ten rural facilities. eRanger provision means EMOC transport is readily-available, without delay whenever needed. Dowa health office also completed 'service agreements' with CHAM to improve access to delivery and EMOC services. Under these agreements, the district health office reimburses CHAM when women are referred to, or seek delivery and EMOC services at a CHAM facility.

Development outcomes:

Since the incorporation of the eRangers into the maternal health service port-olio, Dowa district has seen:

Continued increases in facility deliveries:	2003	25%
	2007	49%
Reductions in referral times:		Halved
Increases in number of referrals being made, as evident in Caesarean section increases:	04-05	7%
	05-06	15%
Reductions in MMR (per 100,000 live births):	04-05	586
	05-06	280
	06-07	235

eRanger Future:

Based on results seen in Dowa, the MOH has pledged to provide every rural health facility with an eRanger ambulance in Malawi. To date, through the MOH and other organisations, a further 170 eRanger ambulances have been ordered.

Mangochi eRanger Motorbike Ambulance Pilot Project

Operational environment:

Diverse and difficult topography, remote communities and health facilities with limited communication systems and at considerable distance from second-level services. The 3 clinics (2 government and 1 CHAM) chosen for the study are between 30 and 110km from the district hospital and have high referral needs. Lack of motorised transport at the clinics has been noted to lead to delays in reaching EMOC and subsequent maternal deaths as women often have to wait up to four days before referral is made.

Focus of the study:

To evaluate eRanger ambulance feasibility as a referral-vehicle, vis-à-vis 4x4/car ambulances, with particular focus on: referral times, operational viability and sustainability, cost-effectiveness, terrain capabilities and socio-cultural acceptability among patient-users.

eRanger introduction:

In February 2001, 3 riders received 5 days of driver and maintenance training in Harare, Zimbabwe before the eRangers became operational in September 2001. Research was carried out between September 2001 and July 2003. Quantitative research examined the practical and technical elements of the eRangers vis-à-vis 4x4/car ambulances whilst focus group discussions were conducted to determine qualitative issues such as acceptability among patient-users. Complimentary activities, the impact on MMR and NNMR were not part of the study's investigations.

Research Findings: Hofman & Dzimadzi's report (2004) found that:

- 1) Impact on referral time: Delay waiting for referral transport was massively reduced and referral time was reduced by 50% or more (depending on road-condition and weather) due to transport being available on-site at the clinics (rather than 4x4s stationed at district hospitals) and the terrain-ability of the eRanger in comparison with 4x4/car ambulances.
- 2) Cost-efficiency: 19 eRangers could be procured and freighted from South Africa for the same cost as one Toyota Land Cruiser vehicle (MK 6,654,077 including surtax). In service, one eRanger was found to cost 4 times less to operate, annually and per kilometre travelled, than a 4x4/car ambulance.
- 3) Terrain-ability: eRangers were found to be constrained by weather conditions in similar ways to 4x4/car ambulances. However, eRangers could travel at greater speeds on hard-packed dirt roads and travel on less well established tracks.
- 4) Acceptability: Whilst referral itself made women anxious, they found the speed, efficiency and availability of eRangers to be better than car ambulances. Some discomfort in-transit was noted by some women. This has since been addressed.

The Ministry of Health initiated the Dowa Programme on the basis of these findings.
