A Community Health Worker Home Visitation Project to Prevent Neonatal Deaths in Kenya

by Allison Livingston,1,2,3 Angelo Tomedi,3 Alison Campbell,2 Carol Morales,2 and Mutuku A. Mwanthi4

1Pediatrix Medical Group, Tucson Medical Center, Tucson, AZ, USA
2Health Sciences Center, University of New Mexico, Albuquerque, NM, USA
3Department of Family and Community Medicine, School of Medicine, Albuquerque, NM, USA
4School of Public Health, University of Nairobi, Nairobi, Kenya

Correspondence: Angelo Tomedi, University of New Mexico Health Sciences Center, Department of Family and Community Medicine, 2400 Tucker NE, Albuquerque, New Mexico 87131, USA. E-mail: <atomedi@salud.unm.edu>

Summary

Neonatal deaths account for 43% of under-5 childhood deaths in Kenya. Most infants are born at home, and many of them die at home unaccounted for, often during the first week of life. Previous studies in which community health workers (CHWs) were trained to provide neonatal care reported reductions in neonatal mortality. These programmes required more resources than may be available in some resource-poor settings. We implemented a brief and inexpensive programme to train rural Kenyan CHWs to evaluate newborn infants for signs of severe illness during the first week of life and refer the ill infants to a health facility. During the first 12 months, 20 CHWs visited 702 infants, and all three visits were completed for 93% of the infants. There were five neonatal deaths, none after the first week of life. A brief low-cost training programme for CHW home visitation of newborns is feasible for rural Kenya and the larger African setting.

Key words: Infant, newborn, community health services, Kenya, developing countries, community health workers.

Introduction

Worldwide, the mortality rate in children aged <5 years has fallen to 35% between the years 1990 and 2010, due mostly to successful interventions targeted at the main causes of mortality in children from ages 1 month to 5 years [1]. No progress has been made in reducing neonatal mortality, ie. death in the first 30 days of life, during that same time frame. Four million neonates still die each year [2], the same number estimated in 2000, the first year estimates were made. Three million of these deaths occur in the first week of life, 2 million in the first 24 h of life and 99% of them take place in low- and middle-income countries [1]. In 2000, the estimated percentage of neonatal mortality as a contributor to under-5 mortality was 38%, and in 2010, that percentage was 41% [2]. Infant mortality in Kenya is 52 per 1000 live births, and 60% of infants die in the first month of life [3]. This neonatal mortality rate is likely an underestimate, as many births and neonatal deaths occur at home and are never recorded.

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access to health care services because of the remoteness of their villages and a lack of transportation. UNICEF has recommended the development of programmes that provide home visits during an infant’s first week of life in these settings. Volunteer community health workers (CHWs) provide a resource for reaching mothers and infants in the peripartum period in a rural setting and have been successfully utilized in studies in Bangladesh, India and Pakistan, which recorded a reduction in neonatal mortality rates of 30–61% using CHWs [4–7]. However, the CHW programmes studied thus far have required more resources for their implementation than may be available in some resource-poor settings. A brief and inexpensive CHW programme, if shown to be feasible, may provide a useful alternative.

Methods
In cooperation with a non-governmental organization and the University of Nairobi, a pilot intervention was developed in Yatta district of eastern Kenya. Yatta district has a population of 153,541 living in 34,502 households [8]. The estimated number of live births is 7,048, with 93% occurring at home [8].

A 2-day training programme was developed for the CHWs on recognizing the signs and symptoms of neonatal illness that would be easy to evaluate on a routine home visit [9]. The training programme was based on a training module of the Ministry of Health and Family Welfare, Government of India, UNICEF [9] and the Lancet study [10] of the most sensitive and specific clinical signs that predict severe illness in children aged <2 months. A written pre- and post-test were administered during the training to assess retained information, and then, a clinical evaluation was done with volunteer patients to assess each CHW’s clinical ability to recognize an ill infant. The Kenya Ministry of Health and the non-governmental organization trained 150 CHWs in 75 villages in the target area in 2007 and 2008, but neonatal assessment and care were not included in that training. Our budget allowed for us to train 20 of the 150 available CHWs. The CHWs visited each newborn on 1, 3 and 7 days of life and referred each infant who exhibited a danger sign to the nearest health facility for medical evaluation and treatment. No treatment component was included in this programme. Transportation of the ill infant was sometimes provided by the clinic nurses but was not consistently available. Demographic and other infant and household characteristics were not collected.

This study was approved by the University of New Mexico Human Resources Protections Office and the Kenyatta National Hospital/University of Nairobi Ethics and Research Committee.

Results
The CHW training course was completed in February 2011. During the first 12 months of the project (1 March 2011–29 February 2012), the 20 CHWs visited 702 newborn infants. All three visits were completed for 655 (93%) of the infants, and 695 infants (99%) had two or more visits. Eleven infants were referred to a health facility for treatment. There were five deaths during the first week of life. The CHWs visited the households of all of the surviving infants after they completed 1 month of age to determine the neonatal mortality. No further deaths were detected; therefore, the crude neonatal mortality rate was 7.1 per 1000 live births in the population studied.

Discussion
This pilot project demonstrates the feasibility of the implementation of a newborn home visitation programme for a rural African country, which is designed to train local CHWs to detect early neonatal illness and refer them for treatment. The brief training course, added to an existing CHW programme, was effective and inexpensive. Our project benefited from an already existing pool of CHWs in our intervention area. The observed neonatal mortality was much lower than expected, given the absence of a treatment component. The number of infants with danger signs who were referred was also unexpectedly low, suggesting a low detection rate, yet no further deaths occurred in the first month of life.

The lack of a control group was a weakness of this study, and further investigation is underway to identify the infants in the target area who were not visited and collect data on the population characteristics of the visited and not visited households. Because our intervention was a 2-day course, we are relying heavily on our project champion, the clinic Ministry of Health nurse, to continually update the CHW’s newborn assessment skills, to collect data, to remain available for medical transport and follow-up of medical assessments and referred newborns.

Neonatal mortality in sub-Saharan Africa has been intractable in the past few decades, and few studies have been conducted to inform public health entities on which interventions may be successful and cost effective. Our CHW home visitation intervention has the potential to be a practical and achievable approach to saving newborn lives in the resource-poor setting of rural Africa.

References