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CLINICAL ARTICLE

Pilot community-mobilization program reduces maternal and perinatal mortality and prevents obstetric fistula in Niger

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ABSTRACT

Objective: To assess the impact of a pilot community-mobilization program on maternal and perinatal mortality and obstetric fistula in Niger. *Methods:* In the program, village volunteers identify and evacuate women with protracted labor, provide education, and collect data on pregnancies, births, and deaths. These data were used to calculate the reduction in maternal mortality, perinatal mortality, and obstetric fistula in the program area from July 2008 to June 2011. *Results:* The birth-related maternal mortality fell by 73.0% between years 1 and 3 ($P < 0.001$), from 630 (95% confidence interval [CI] 448–861) to 170 (95% CI 85–305) deaths per 100 000 births. Early perinatal mortality fell by 61.5% ($P < 0.001$), from 35 (95% CI 31–40) to 13 (95% CI 10–16) deaths per 1000 births. No deaths due to obstructed labor were reported after the lead-in period (February to June 2008). Seven cases of community-acquired fistula were reported between February 2008 and July 2009; from August 2009 to June 2011 (23 months; 12 254 births), no cases were recorded. *Conclusion:* Community mobilization helped to prevent obstetric fistula and birth-related deaths of women and infants in a large, remote, resource-poor area.

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1. Introduction

According to global estimates [1,2], 500 000–600 000 maternal deaths (from conception to 42 days after termination of pregnancy) occurred per year between 1980 and 2005, although the number has substantially decreased since, to 342 900 in 2008 [3] and 287 000 in 2010 [4]. In Niger, 15-year-old girls had a one in seven lifetime risk of pregnancy-related death in 2005, which was the highest risk of any country [2].

Obstructed labor causes 4%–30% of maternal deaths worldwide [5,6], and 15% of maternal deaths in Niger's hospitals [7]. It causes obstetric fistula among many survivors: WHO estimates that 73 000 obstetric fistulas occur annually worldwide [8], but other estimates are as high as 130 000 per year [9]. Only 10 000–11 000 fistulas are repaired annually [9], and 5%–25% of fistula surgeries are unsuccessful [10–13]. Prompt identification of women in prolonged labor and rapid access to emergency obstetric care can prevent both maternal death and obstetric fistula.

In February 2008, Niger's Ministry of Health began implementing a community-based pilot project to rapidly prevent obstetric fistula and deaths from obstructed labor in one area of the country, with assistance from Health and Development International and the United Nations Population Fund [10]. The project aims to reduce the mortality from obstructed labor by 75% and the incidence of obstetric fistula by 50% within 2 years in a high-incidence area. The aim of the present study was to assess developments in the first 41 months of this ongoing health program.

2. Materials and methods

The community-based pilot program serves the Bankilare and Gorouol subdistricts in the district of Téra, which were chosen because of poor geographic access, little external assistance, and frequent obstructed labor complications including obstetric fistula. The size of the multiethnic, agricultural, and pastoral population is estimated at 100 000 people (22 000 women of childbearing age) living in 305

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communities across 4650 km^2 of Sahelian terrain [14]. The area has one unpaved road, no piped water, and almost no electricity. At the start of the program in 2008, the area had only one midwife, no doctor, and eight health centers, with one ambulance stationed in Bankilare town, more than 60 km away from many villages. Obstetric care is free in Niger, but the district's hospital is up to 140 km away for many people in Bankilare and Gorouol (Fig. 1). Furthermore, this hospital has unreliable electricity and no running water, and, when the program started, had only one doctor who performed all cesarean deliveries for the district. In his absence, the nearest emergency obstetric surgery was in Niamey, which is another 3 hours away by ambulance.

Health service improvements occurred in the program area during the first 41 months of implementation, but the program neither influences, funds, nor knows in advance about government improvements. Another doctor joined the district hospital in April 2008, and a third arrived in early 2011. A ninth health center was established in Amarsingué (Amarassindé) in January 2011. Mobile phone service expanded from limited coverage to coverage of 80% of the area by June 2011. The program added a midwife, who was based in Dolbel, and added two supervisors when 94 villages proved too much for one person to oversee. A politician procured an additional ambulance that was stationed in Dolbel. No other health service improvements were identified during the period.

Five concepts underlie the program (Box 1). The key intervention is to evacuate women in obstructed labor from their home to a midwife, health center, or hospital. The program uses community volunteers to ensure the sun never rises twice over a woman in labor. An online toolkit [15] describes the program in detail, including how community members are taught.

Informed community consent is obtained through civic and traditional leaders. Villages select a male and a female volunteer who implement key program activities. Topics of conversation are segregated by sex in Niger, so male and female volunteers have different tasks. Female volunteers speak with pregnant women and their families, encourage prenatal consultation and delivery in a facility, and seek verbal permission in advance in case evacuation to the hospital becomes

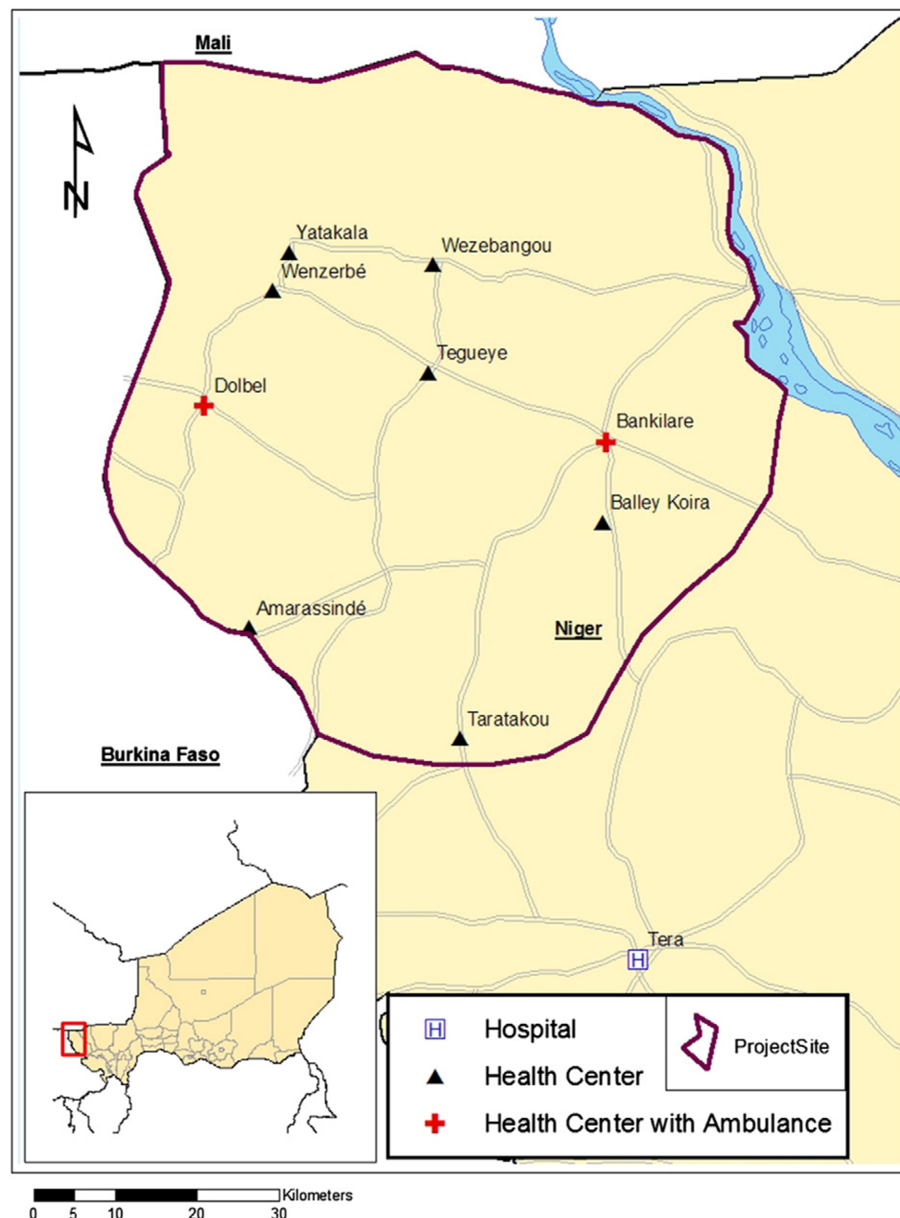

Fig. 1. Map of the program area in Niger. The map shows the location of the district hospital, the two ambulances, and government health centers as of June 2011.

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