

Introduction

Background:

Half of rural Guatemala's population is indigenous with limited access to formal education. Most births (86%) are attended by traditional midwives at home.

Despite 30 years of trainings which target traditional Guatemalan midwives, significant questions remain as to the best training methods, their efficacy, and the trainings' influence on decreasing perinatal mortality (2nd highest in Latin America).

Low birth weight has been estimated at 12%-32% and is a significant contributor to infant morbidity and mortality.

Purpose:

- Assess traditional Guatemalan midwives'
 - delivery experiences,
 - educational training, and
 - access to obstetric equipment.
- Train traditional Guatemalan midwives to perform two methods of newborn gestational age assessments.
 - Capurro (4 physical and 2 neuromuscular maturity criteria)
 - New Ballard (6 physical and 6 neuromuscular maturity criteria)

Design/ Sample

In August 2009, a cross-sectional survey was verbally-administered by the authors to 49 traditional midwives representing 28 communities. The purpose of the survey was to assess the midwives' training, birth experiences, and collaboration and referral practices.

Midwives also attended one of three general community trainings on the Capurro and New Ballard newborn gestational age assessment techniques. Trainings included demonstration, role play, discussion, and skills practice.

Nine midwives representative of the larger cohort and one auxiliary nurse also received an intensive 4-day gestational age assessment training in the regional hospital. A total of 43 gestational age assessments were subsequently performed in the hospital and 22 in community homes.

Results

Figure 1: San Lorenzo community midwife training



Figure 2: San Lorenzo community training



Table 1. Comparison of intensively trained midwives and auxiliary nurse to other participants in a general training session

	Intensive training n=10	General Training n=39
Age, years (SD)	47.6 (12.6)	47.9 (15.2)
Education, years (SD)	4.6 (3.1)	2.8 (4.9)
Indigenous (Mam-speaking), n (%)	6 (60)	27 (60)
Auxiliary Nurse, n (%)	1 (10)	7 (18)
Traditional Birth Attendant, n (%)	9 (90)	32 (82)
Cost per delivery, US\$ equivalent (SD)	8.03 (6.23)	6.11 (5.75)
Supplies owned:		
Scissors, n (%)	10 (100)	36 (92)
Scale (spring balance), n (%)	8 (80)	24 (62)
Thermometer, n (%)	5 (50)	15 (38)
Delivery kit, n (%)	1 (10)	2 (5)
Bulb syringe, n (%)	1 (10)	3 (8)
Gloves, n (%)	0 (0)	4 (10)

Table 2. Baseline characteristics of infants evaluated in the hospital and at home

	Hospital birth n=43	Home birth n=22
Maternal age, years (SD)	25.3 (6.3)	26.2 (6.6)
Maternal education, years (SD)	4.9 (4.3)	3.5 (2.5)
Indigenous (Mam language) [§] , n (%)	2 (4.6)	18 (81.8)
Hours since birth [§] (SD)	17.4 (12.6)	45.5 (21.0)
Birthweight [§] , grams (SD)	2841 (392)	2540 (295)
Birth length, cm (SD)	48.2 (2.8)	47.1 (2.0)
Head circumference, cm (SD)	33.4 (0.3)	33.1 (1.7)
New Ballard score*, weeks (SD)	37.2 (2.0)	36.1 (1.4)
Capurro score, weeks (SD)	38.7 (2.2)	37.7 (1.7)

* p-value < .05 § p-value < .001

Figure 3: San Marcos regional hospital midwife training



Figure 4: Capurro method in use in the field



Summary

Mean participant age was 47.8 years (27-79); 48% had no formal education; sixteen (33%) spoke Spanish only; 14 (29%) spoke Mam (Mayan language) only; and 19 (39%) spoke both. The midwives owned minimal equipment:

- 45 (93%) scissors
- 31 (65%) a spring balance
- 19 (39%) a thermometer
- 15 (31%) tape for cord clamping
- 9 (19%) a blood pressure cuff
- 6 (12%) resuscitation equipment
- 4 (8%) a bulb syringe
- 4 (8%) non-sterile gloves
- 3 (6%) a standard delivery kit

Depending on the complication, 7-37 (14%-76%) referred patients to biomedical providers.

On average, 36 (75%) charged 86 quetzales (USD \$10) for complete services, with payments in cash (71%) and trade (21%).

Conclusions/ Further Study

In Guatemala, 30 years of training traditional midwives has failed to significantly improve perinatal outcomes. Our survey indicates that rural Guatemalan midwives still have very little access to delivery kits, equipment, and effective obstetric education.

Intensive training and close supervision were used to successfully teach nine traditional midwives and one auxiliary nurse gestational age assessment techniques. Further research should assess long-term impacts of use of gestational age assessments on perinatal outcomes.

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