Published in final edited form as:

Int J Gynaecol Obstet. 2019 September ; 146(3): 386–387. doi:10.1002/ijgo.12865.

Investigating barriers and facilitators to facility-level births in rural Guatemala

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Keywords

Guatemala; Indigenous health; Lay midwife; Obstetrical referral; Rural health

The maternal mortality rate in Guatemala is one of the highest in the region, with limited progress made over the last two decades.[1] This is partly explained by the fact that much of Guatemala's rural population is indigenous Maya, with a strong preference for home delivery with lay midwives. Qualitative studies demonstrate that cultural and language barriers, as well as experiences of disrespect and discrimination, discourage facility-level births.[2] However, quantitative data on the decision to seek hospital-level care is limited. This data could better define barriers and facilitators to care for indigenous patients.

In a collaborative effort with 41 midwives in rural Tecpán, Guatemala to improve the continuum of obstetrical care, we developed a smartphone-based data collection registry to track indications for and outcomes of midwife-initiated obstetrical referrals.[3] This work was approved by the Institutional Review Boards of Emory University and Maya Health Alliance and registered at [ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT02348840) (NCT02348840); written informed consent was

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AUTHOR CONTRIBUTIONS

MJ analyzed data and wrote the first draft of the manuscript. BM supervised data collection and critically revised the manuscript. RCH, GC, and PR designed the study and critically revised the manuscript.

[ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT02348840): NCT02348840

CONFLICTS OF INTEREST

The authors declare no relevant conflicts of interest.

obtained from all patients and midwives. Here, we report an initial analysis of 818 patients from 72 rural villages managed by midwives from March 2016 to March 2017. Midwives initiated 144 referrals to higher-level care (17.6% of all patients). Of these, 126 (87.5%) were successful and 18 (12.5%) did not complete the referral.

Of the 144 midwife-initiated referrals, 57 (39.6%) were prenatal, 80 (55.6%) intrapartum and 7 (4.9%) postpartum. The most common midwife-reported indications for prenatal and intrapartum referrals were prolonged labor (23.4%), concern for preeclampsia (17.5%), premature rupture of membranes (16.8%), and prenatal or intrapartum hemorrhage (5.8%). For postpartum referrals, the most common indications were placental retention (42.9%) and fever (28.6%).

We compared selected sociodemographic and clinical characteristics of individuals who successfully completed a referral versus those who did not with the Wilcoxon rank-sum test (continuous variables) and the Chi-square test (categorical variables) using STATA 14.0 (College Station, TX, USA) (Table 1). Patients who were nulliparous, had an older age at first pregnancy, or had a complication detected during the current pregnancy were more likely to be successfully referred to facility-care than those who were not. For the 18 unsuccessful referrals, qualitative follow-up interviews with midwives and patients showed that the common causes for not completing the referral were: opposition to transfer by a husband or other family member; difficulty coordinating rural transport; and therapeutic disagreement between the patient and midwife about the need for referral. These preliminary results already suggest programmatic areas for improving care. For example, women with prior pregnancy experiences appear less likely to accept referral and could be targeted for education. Similarly, qualitative reasons suggest that ongoing work is needed to improve transportation and to sensitize patient and family attitudes to facility-level care.

ACKNOWLEDGEMENTS

This work was funded in part by the National Institutes of Health (Award 1R21HD084114-01 to GC, RCH and PR).

Funding Information:

National Institutes of Health; 1R21HD084114

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Synopsis:

A collaborative registry with lay midwives is allowing us to collect prospective data on indications for and barriers to facility-level care in rural Guatemala.

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Table 1.

Sociodemographic and clinical characteristics of patients who completed vs. did not complete an indicated obstetric referral.

Characteristic	Successful Referral (n=126)	Unsuccessful Referral (n=18)	P-value ^a
Demographic characteristic			
Age, years (interquartile range [IQR])	25 [21–31]	23 [21–28]	0.17
Prefer to speak Mayan language, %	34.4	41.2	0.58
Obstetrical History			
Age at first pregnancy, years [IQR]	20 [18–22]	18 [16.5–19]	0.009
Nulliparous, %	33%	0%	0.007
Prior pregnancies, n [IQR] ^b	3 [2–6]	3 [2–4]	0.74
Prior caesarean section, % ^b	27.9	12.5	0.20
Prior obstetrical complication, % ^b	30.9	18.8	0.33
Complication this delivery, %	64.8	13.3	0.00
Receiving active prenatal care, %	97.1	86.7	0.06
Prior Medical History			
Hypertensive disorder, %	10.7	0	0.49

^aWilcoxon rank-sum test used for continuous variables, and Chi-square test used for categorical variables

^bExcluding nulliparous individuals.