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Reproductive Health Matters 2009;17(33):9–20
0968-8080/09 $ – see front matter
PII: S0968-8080(09)33459-X

REPRODUCTIVE HEALTH matters
www.rhmjournal.org.uk

Emergency obstetric care and referral: experience of two midwife-led health centres in rural Rajasthan, India

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Abstract: *This paper documents the experience of two health centres in a primary health service located in interior rural areas of southern Rajasthan, northern India, where trained nurse-midwives are providing skilled maternal and newborn care round the clock daily. The nurse-midwives independently detect and manage complications and decide when to refer women to the nearest hospital for emergency care, in telephonic consultation with a doctor if required. From 2000–2008, 2,771 women in labour and 202 women with maternal emergencies who were not in labour were attended by nurse-midwives. Of women in labour, 21% had a life-threatening complication or its antecedent condition and 16% were advised referral, of which two-thirds complied. Compliance with referral was higher for maternal conditions than fetal conditions. Among the 202 women who came with complications antenatally, post-abortion or post-partum, referral was advised for 70%, of whom 72% complied. The referral system included counselling, arranging transport, accompanying women, facilitating admission and supporting inpatient care, and led to higher referral compliance rates. There was only one maternal death in nine years. We conclude that trained nurse-midwives can significantly improve access to skilled maternal and neonatal care in rural areas, and manage maternal complications with and without the need for referral. Protocols must acknowledge that some families might not comply with referral advice, and also that initial care by nurse-midwives can reverse progression of certain complications and thereby avert the need for referral.* ©2009 Reproductive Health Matters. All rights reserved.

Keywords: delivery care, obstetric complications, emergency obstetric care, referral, nurse-midwives

ENHANCING access to skilled care during and after childbirth is a key strategy for reducing maternal mortality.[1,2] The 2005 *World Health Report* recommended provision of professional but de-medicalised care through midwife-led birthing centres located close to people's homes.[3] Thus, professionally trained midwives are an important human resource for rendering maternal health care, especially in underserved primary care settings. A functioning referral system and back-up hospital care are vital components of successful maternity care programmes.[4] However, referral to an urban hospital may not be possible or might be subject to delays because of distance, costs and the family's apprehensions about the woman being referred.[5]

Within India, promoting institutional delivery through demand-side financing has become a key strategy to reduce maternal mortality – women receive a substantial cash payment if they deliver in a government health facility.[6] Concerns have been raised about under-equipped facilities consequently become overstretched and quality of care declining, but in fact the majority of institutional deliveries have taken place in doctor-led facilities with nurse-midwives working largely as assistants.

Service guidelines have been developed for use by skilled attendants working in primary care settings,[7,8] and their knowledge and skills have been studied and assessed.[9,10] Most guidelines mandate skilled, non-physician attendants to stabilise and then refer women with obstetric complications to the nearest emergency facility. In 2005 the Government of India issued guidelines allowing nurse-midwives to initiate emergency care independently before referral. However, there is little documented experience of the implementation of such guidance by first-level maternal care services, especially as to how midwives recognise, manage and refer for treatment of complications, and how families respond to the need for referral.

Rajasthan's maternal mortality ratio is estimated at 445 per 100,000 live births.[11] Deliveries in health facilities have increased from 15% in 1998-99 to 23% in 2005–06 for rural women,[12,13] but marginalised groups continue to lag behind in access to essential maternal health services. This paper documents the experience of two health centres in a primary health service located in interior rural areas of southern Rajasthan, in northern India, where trained nurse-midwives are providing skilled maternal and newborn care round the clock every day. The nurse-midwives independently detect and manage complications and decide whether to refer women to the nearest hospital for emergency obstetric care, in telephonic consultation with a doctor, when required. It analyses the factors influencing decisions on when to manage women locally and when to refer women with maternal complications, and describes an active referral system which allowed for rapid access to emergency obstetric care for women, especially those from the poorer, socially disadvantaged communities of the area.

Intervention and data sources

Action Research and Training for Health (ARTH), a non-profit public health organisation based in southern Rajasthan since 1997, has implemented a field service programme for a rural population inhabiting 49 villages (2008 population estimated at 57,000). Recognising the paucity of doctors in the rural interiors, ARTH initiated a service to demonstrate the feasibility of providing maternal health services through nurse-midwives, by training, empowering and supporting them in this role. The first health centre started providing 24-hour maternal–neonatal health services in 1999, and a second one commenced at the end of 2002. Southern Rajasthan's villages comprise several small hamlets scattered across low hills. While motorable roads reach most village centres, most hamlets, which are inhabited by marginalised scheduled tribes, are accessible only on foot. Data reported in this paper cover the nine years from January 2000 to December 2008.

Midwives recruited to health centres had either undergone an 18-month auxiliary nurse-midwife (ANM) certificate course or a three-year general nursing and midwifery (GNM) diploma, both recognised by the state nursing council. A quick assessment of knowledge and skills at the time of recruitment suggested that most lacked the skills and confidence to conduct a delivery or manage emerging complications independently. Doctors and senior nurse-midwives provided them with practical on-the-job training over 48 days in maternal–neonatal health care. ARTH developed and field-tested a local language training module[14] by adapting generic service guidelines from the World Health Organization (WHO), *Saving Newborn Lives* and Government of India.[7,8,15–21]

Antenatal care provided at the health centre was based on the WHO antenatal care model, (20) adapted for use by midwives in a primary care setting. Nurse-midwives were trained to follow evidence-based labour and delivery care practices.[17,21] They were specifically instructed not to augment labour even in the face of pressure from family members to hasten delivery. Women were discharged a minimum of 24 hours after delivery; those with maternal or neonatal problems stayed for a few days longer, as required. Decision-making protocols for managing complications during pregnancy, labour and the postpartum period were in accordance with WHO guidance;[7] cut-off criteria for referral were conveyed during training and reinforced at the time of the doctors' routine visits and during emergency telephonic consultations. Although a lot depended on when women presented at the health centre, the practice was to detect and manage complications in the early stages and/or to advise referral before they developed into full-blown emergencies. For example, referral was considered when the partograph crossed the alert line, when transverse lie was detected or when a woman presented in labour with a twin pregnancy. Thus, referral was advised both for complications and for