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# Organizing delivery care: what works for safe motherhood?

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The various means of delivering essential obstetric services are described for settings in which the maternal mortality ratio is relatively low. This review yields four basic models of care, which are best described by organizational characteristics relating to where women give birth and who performs deliveries. In Model 1, deliveries are conducted at home by a community member who has received brief training. In Model 2, delivery takes place at home but is performed by a professional. In Model 3, delivery is performed by a professional in a basic essential obstetric care facility, and in Model 4 all women give birth in a comprehensive essential obstetric care facility with the help of professionals. In each of these models it is assumed that providers do not increase the risk to women, either iatrogenically or through traditional practices. Although there have been some successes with Model 1, there is no evidence that it can provide a maternal mortality ratio under 100 per 100 000 live births. If strong referral mechanisms are in place the introduction of a professional attendant can lead to a marked reduction in the maternal mortality ratio. Countries using Models 2–4, involving the use of professional attendants at delivery, have reduced maternal mortality ratios to 50 or less per 100 000. However, Model 4, although arguably the most advanced, does not necessarily reduce the maternal mortality ratio to less than 100 per 100 000. It appears that not all countries are ready to adopt Model 4, and its affordability by many developing countries is doubtful. There are few data making it possible to determine which configuration with professional attendance is the most cost-effective, and what the constraints are with respect to training, skill maintenance, supervision, regulation, acceptability to women, and other criteria. A successful transition to Models 2–4 requires strong links with the community through either traditional providers or popular demand.

*Voir page 405 le résumé en français. En la página 406 figura un resumen en español.*

## Introduction

Ten years into the Safe Motherhood Initiative some 585 000 women are dying annually from obstetric complications and associated diseases. The international community continues to discuss strategies for reducing the incidence of maternal mortality from direct obstetric complications. Current models favour either a community-based approach aimed at all women, supported by a first referral unit, or a referral hospital approach with a facility upgrade for responding to unexpected complications. There is little definitive research evidence, however, to support either approach.

Proving that a strategy reduces mortality depends on the study design used to implement the intervention and on the ability to measure the desired

outcome. In safe motherhood programmes targeting mortality from direct obstetric complications the necessary interventions usually involve all levels of the health system rather than a single drug or procedure, and they are commonly delivered to communities rather than individuals. These factors limit applicable study designs to descriptive designs or community randomized trials. The latter offer a higher standard of proof but the nature of safe motherhood service delivery interventions is such that to be able to generalize about results is unlikely beyond the context in which trials are conducted. This makes costs prohibitive in relation to benefits. Greater feasibility is associated with a more detailed review of epidemiological data and the building up of a coherent case study, and this is also likely to yield useful results.

Our aim is to clarify the processes involved in reducing maternal mortality by reviewing national-level data from developing countries where maternal mortality ratios have declined to about 100 per 100 000 live births or below. We have built case studies around a theoretical framework that considers where women give birth and who conducts deliveries. These factors were chosen because most maternal mortality occurs close to the time of delivery

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and because they capture key elements of the service organization. Such data cannot indicate a cause-and-effect relationship between programme interventions and subsequent reductions in the numbers of deaths but they do provide insights into how national programmes might have succeeded in reducing maternal mortality. Most of our information comes from internal government reports, annual progress reports of health ministries, national development plans, and discussions with health ministry officials and other key people. In order to elucidate the processes that potentially contribute to national success we drew on project data where available. The case studies were extremely useful but data with which to build on them were neither readily accessible nor comprehensive.

Our review of country programmes and projects has yielded four basic models of care, best described by organizational characteristics relating to where women give birth and who conducts deliveries. The range is from home delivery by a non-professional (which includes traditional birth attendants, relatives, and other community workers with brief health training) (Model 1) to delivery in a facility with comprehensive essential obstetric care by a professional (Model 4). Some features of successful models are shown in Table 1. Table 2 lists national programmes and projects that exemplify each model of care and their maternal mortality ratios.

## What contributes to success?

### Model 1. Home deliveries by non-professionals trained briefly

In many developing countries it is normal for childbirth to occur at home. The mother may be on her own or delivery may be performed by a non-

professional, who may be a family member or a trained or untrained traditional birth attendant. Such persons are not trained to manage obstetric complications. Maternal mortality is high in these countries, reflecting the difficulty of achieving success with this model. Nevertheless, it is clearly desirable to make this model work, since nearly half the women in developing countries give birth at home in the presence of unskilled attendants. Good results have been obtained on a large scale in rural China and at project level in Fortealeza, Brazil.

In 1996 the maternal mortality ratio in China was 61 per 100 000 live births (Fig. 1). However, in 1994 the urban ratio was 17–20 per 100 000, almost half of births taking place in hospitals attended by professionals, whereas for rural areas, where children were mostly born at home, the corresponding value was 115 per 100 000 (2).

Perhaps the principal factor in China's success has been the expansion of rural health services in the 1960–1980 period. A barefoot doctor was selected and trained in each commune. Although the barefoot doctors could not manage obstetric complications, they often recognized them and referred affected women. A referral system linked these rural birth attendants to township health centres, county maternal and child health institutes, or hospitals. These were, and still are, linked to specialized municipal, provincial and national maternal and child health services and research facilities. Township health centres have about 15 inpatient beds for all illnesses and are staffed by doctors with two or three years of training and by midwives. Surgical capacity varies at this level but should be available at county hospitals. Most specialists work at the county and city levels. We were unable to ascertain whether transport for referral was provided, but expenses for care were covered by a cooperative insurance scheme.

Table 1. Models of safe motherhood care: features of successful service organization

Who delivers	Where birth takes place		
	Home	Basic essential obstetric care facility	Comprehensive essential obstetric care facility
Non-professional	Model 1: lay provider recognizes complications; family or provider organizes access to essential obstetric care; functioning essential obstetric care available		
Professional	Model 2: professional recognizes complications; professional provides basic essential obstetric care; family or provider organizes access to essential obstetric care; functioning essential obstetric care available	Model 3: professional recognizes complications; professional provides basic essential obstetric care; facility organizes access to essential obstetric care; functioning essential obstetric care available	Model 4: professional recognizes complications; professional provides basic and comprehensive essential obstetric care

Table 2. Programme and project examples and maternal mortality ratios (MMRs) for different models

Who delivers	Where birth takes place		
	Home	Basic essential obstetric care facility	Comprehensive essential obstetric care facility
Non-professional	Model 1: China (rural), MMR = 115 Forteleza, Brazil, MMR = 120		
Professional	Model 2: Malaysia (1970s to early 1980s), MMR = 50 the Netherlands (1955–1970), MMR decreased from 61 to 12	Model 3: Malaysia (mid-1980s to 1990s), MMR = 43 Sri Lanka, MMR = 30	Model 4: United Kingdom, MMR = 9 USA, MMR = 12 Urban China, MMR = 20 Mexico City, MMR = 114

Sources: see references 3, 6, 8, 9, 12, 14, 15, 17.

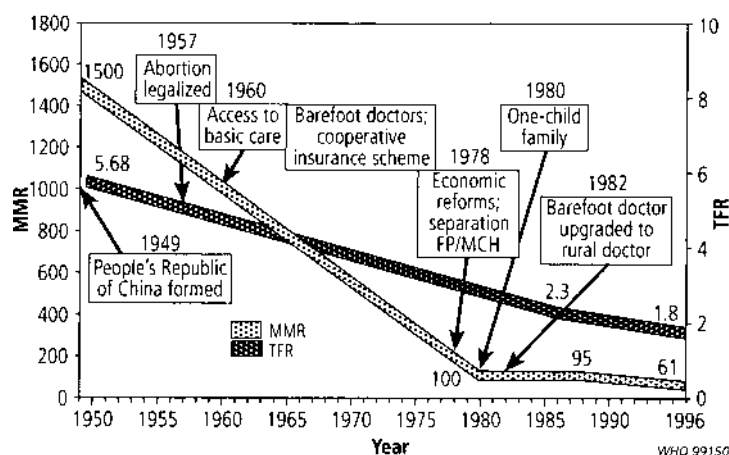
The maternal and child health centres at county level are the cornerstone of the maternal and child health preventive network, providing prenatal and postnatal care and, in some centres, delivery care. Staff at this level train and supervise workers at lower levels, where they spend about a third of their time. This network provides preventive support and covers approximately 88% of China's villages (3).

China's population policies also contributed to the decline in maternal mortality. The total fertility rate fell from 5.7 in the 1960s to 2.3 in 1986 and 1.8 in 1996 (4, 5), and this accounted for a reduction of about two-thirds in the number of maternal deaths over the period in question. The legalization of abortion in 1957 virtually eliminated unsafe abortion as a cause of maternal mortality. Social campaigns such as those for late marriage and women's literacy have undoubtedly also had an impact in this connection.

It should be noted, however, that economic reforms introduced in 1978 greatly diminished the financial and human resources available for rural health care. The numbers of village doctors and rural birth attendants have fallen since 1975, partly because of dismissals for technical incompetence but also as a consequence of the change from a cooperative insurance scheme to a fee-for-service system in most rural areas. The demand for and provision of preventive services such as prenatal and postpartum care have declined as the cooperative scheme collapsed throughout the countryside. Providers at all levels have become more concerned with generating salary support through fees for curative care.

These economic reforms undoubtedly tended to dissolve the strong referral network previously established and may have contributed to producing the plateau in the maternal mortality ratio at 50–100 per 100 000 live births since the 1980s. Other forces, however, have strengthened maternity care. Notwithstanding the controversy surrounding the one-child policy, this has probably helped to reduce maternal as well as perinatal mortality. The increased demand for perceived higher quality care that was

Fig. 1. Maternal mortality ratio (MMR) and total fertility rate (TFR) in China, 1949–1994



stimulated by the policy has led people to bypass lower-level health units in favour of hospitals, if they seek care at all. The paucity of female rural doctors at village level has been overcome since 1990 through recruitment, training and deployment: by 1997 one female doctor was working in every village. The period of training of new rural doctors has increased from three to six months to three years in paramedical schools at county level.

Strong political backing for efforts to reduce maternal mortality has been maintained. In 1990, after the World Summit on Children, China resolved to reduce maternal mortality by half. Provincial governors, who are required to report progress towards this target at annual national meetings, hold county and township officials accountable for the maternal mortality ratios in their areas. Strategies for achieving targets are determined at the provincial level or below.

In Yunnan Province, for example, the national emphasis on a target for the maternal mortality ratio has translated into management directed at ensuring continued progress. Officials at lower levels sign

contracts to reduce the ratio by a certain percentage each year. Funding is dependent on the achievement of the targets, although officials can mobilize their own resources for this purpose. Special committees follow up every maternal death with signed statements by providers and villagers. In one area, concern for maternal safety was such that an official published the names and telephone numbers of persons with vehicles available for emergency transport.

In Fortealeza, Brazil, traditional birth attendants, like China's barefoot doctors, are unlikely to be able to manage obstetric complications. Yet in 1984 the maternal mortality ratio in Trairi County was 120 per 100 000 live births, even though 55% of women gave birth at home with the help of a traditional birth attendant. A third of women went to a local hospital where only basic essential obstetric care was available, and 4% went to hospitals with surgery and specialists (6). Most complicated deliveries were thus managed in local hospitals without surgical capability. Nearly half the women with complications who gave birth in hospitals had been referred by traditional birth attendants. In 52% of instances these referrals were considered to have been linked to a complication as diagnosed by clinically trained staff, whereas this was true of self-referrals in only 18% of cases. Traditional birth attendants apparently did not try to manage the complications they diagnosed but preferred to make referrals.

Fortealeza's achievement took place over a decade. In 1975 the medical officer for the public referral hospital serving two million people observed that women dying in childbirth originated in rural areas where the primary assistant at delivery was a traditional birth attendant. The medical officer introduced a series of short training sessions for traditional birth attendants, together with practical training in a maternity unit. This ensured that each traditional birth attendant could provide prenatal care, identify problem pregnancies, and assist in normal deliveries and postpartum care. Some traditional birth attendants were selected to work in mini-maternity units that ranged in size, resources and services; most consisted of a single room with a telephone, adjoining the traditional birth attendant's home (7). The traditional birth attendants' work was supported by periodic supervision and instruction by teaching staff and local hospital personnel. The traditional birth attendants were given uniforms, supplies and reimbursement for travel to meetings, but they did not receive salaries. No professional midwives were reported in the system.

In Model 1 the role of the non-professional in triage and referral of complicated births is probably pivotal. Traditional birth attendants in Fortealeza could use telephones to arrange for transport. Transport to hospital was provided for referred patients and hospital services were free. The traditional birth attendants probably felt that they were part of the system.

## Model 2. Home deliveries by a professional

We found few instances of home delivery being provided by a midwife or doctor in Africa and Asia. However, in countries where professionally trained staff provided such outreach and attended over half of all deliveries at home there was a marked degree of success. This happened in Malaysia between the mid-1970s and mid-1980s and in the Netherlands between 1955 and 1980.

Before the 1970s most Malaysian women delivered at home with the help of a traditional birth attendant. Maternal mortality was 670 per 100 000 live births in Peninsular Malaysia in 1948 (8) and 320 per 100 000 in 1957 (9). Between the mid-1970s and mid-1980s most births still occurred at home but the main attendant was a professional midwife, and the maternal mortality ratio decreased to 50 per 100 000. In 1996 the figure was 43 per 100 000 (10) (Fig. 2). As from 1973, traditional birth attendants were gradually shifted towards performing a more exclusively family supportive role. By 1995 the proportion of deliveries managed by traditional birth attendants had fallen to under 1%, while professional midwives covered 95% of home births.

The first step in the move from traditional birth attendants to professional midwives involved the expansion of free health services to the rural population. Trained midwives/community nurses were posted to villages. They were supported by health units, one of which was planned per 50 000 population, together with four subcentres and 20 clinics with resident midwives. Urban district hospitals and general hospitals served as referral sites. The midwife to population ratio attained in 1975 was 1:4300. By 1979 this network covered about 40% of the rural population of seven million.

Midwives are salaried civil servants based in village clinics with attached housing. They provide maternal health care, including home visits in the prenatal and postpartum periods, normal delivery and risk screening, referral with transport, family planning, and child health care services. They carry drugs and administer oxytocin, but have to call a public health nurse/rural nurse if antibiotics, suturing or a drip are needed. Complicated births must take place in a maternity home or hospital where beds are available. Recently, the training of midwives was extended to provide a formal programme lasting two and a half years following graduation from senior high school. The hands-on training includes a hospital attachment and a community posting. Checklists assist the midwives in the recognition of signs and symptoms dictating facility-based deliveries.

Complementing the strategy of increased midwifery coverage in the home was a programme for reducing the dominant role of traditional birth attendants in childbirth. Most midwives had prior knowledge of the communities and were accepted as being mature enough to provide care to families; consequently their integration into the communities was not unduly difficult. The programme incorporated

traditional birth attendants into the formal health care system through various mechanisms, including:

- registration of literate traditional birth attendants;
- training on sterile technique;
- supervision of registered traditional birth attendants;
- inclusion of traditional birth attendants in all health care functions;
- gradual limitation of the role of traditional birth attendants at labour and delivery through pressure from health staff and community leaders, with retention of their positive role in traditional massage and postpartum care.

Maternal and child health committees, with representation from the hospitals and rural services, were established or reactivated in each state in 1978 in order to tackle the gap between the rural providers and the hospitals. These committees, still active today, investigate every maternal and child death and coordinate local training sessions for health centre staff.

Malaysia has strongly supported and promoted childbirth in the home attended by professionals. Home providers are well trained, work in partnership with the traditional birthing system and are supported by a strong referral network, and all services are free.

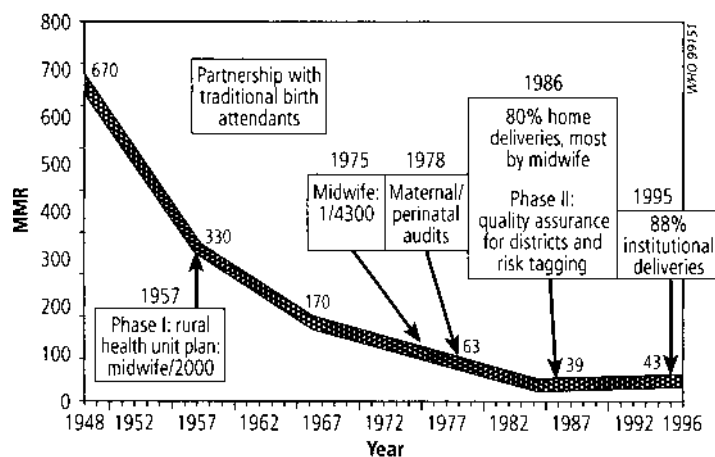
### Model 3. Delivery by a professional attendant in a basic essential obstetric care facility

The countries that successfully implemented a Model 2 approach usually made the transition to Model 3, in which all essential obstetric functions are available except for surgery, anaesthesia and blood transfusion. In the Netherlands an attempt has been made to maintain Model 2 through financial incentives and political will, yet only a third of Dutch women have home births.

In the mid-1980s, Malaysia encouraged women to deliver in hospitals when some 80% of rural births still occurred at home and were attended primarily by midwives/community nurses. By 1995, among the 98% of women giving birth with the help of clinically trained personnel in Peninsular Malaysia, 66% were in government hospitals, 20% in private hospitals or maternity homes, and 12% were in their own homes (11). Domiciliary births are now almost exclusively covered by rural midwives. The ratio of maternal deaths from direct obstetric causes in 1996 was 20 per 100 000 live births, although the overall maternal mortality ratio was 43 per 100 000.

The shift from Model 2 to Model 3 in Malaysia involved a risk tagging system, in which all pregnant women are evaluated by midwives according to a standard set of risk criteria. Even women at low risk are now predominantly giving birth in hospital. Health care staff communicated the benefits of hospital-based delivery to both pregnant women and other decision-makers in their families. Special efforts were made to demystify the hospital experience, and free transport was organized.

Fig. 2. Maternal mortality ratio (MMR) in Peninsular Malaysia, 1948–1996



In the mid-1980s, Malaysia initiated a quality assurance system to ensure the adequacy of hospital care. Hospitals with and without specialists are compared twice a year in accordance with indicators set by clinical specialists. Outliers are obliged to investigate the reasons for their poor performance and they report their findings and remedial measures to state and national quality assurance committees. Accountability has also been implemented at district level. The sense of ownership of local programmes is thus increased, while officials are held responsible for the performance of their programmes in yearly reviews of maternal mortality.

Malaysia's move to Model 3 has been successful in shifting births from the home to the hospital, institutional delivery having reached 88% by 1995. In this way a continued decline in the maternal mortality ratio has been brought about.

In Sri Lanka, health services for rural communities began to receive special attention in 1931. Maternity homes, central dispensaries, and rural and cottage hospitals were constructed, and training was provided for medical, nursing and midwifery staff. Midwives were deployed throughout the country for both domiciliary and institutional care as far back as 1906. By 1996 there was one midwife per 3000–5000 population. A primary care unit exists within 5 kilometres of every home. Of the 510 government health facilities in the country, 494 can provide obstetric services (12). Referral for obstetric patients with complications is available with transfer by ambulance to 45 hospitals where there are specialist obstetricians. In 1993 the ratio of obstetricians to live births was approximately 1 to 4000. The accessibility of health services to the poorest people was ensured by making them free. By 1996 over 94% of births occurred in hospitals (13), the remainder taking place at home in the care of trained personnel.

The experiences of Malaysia and Sri Lanka demonstrate that women are willing to change from home delivery to facility-based delivery. A successful transition requires free transportation and services

for all, awareness of the services in the communities, and ensured quality in the facilities.

#### **Model 4. Delivery by professional attendants in comprehensive essential obstetric care facilities**

Australia, Japan and New Zealand, and most countries in Northern and Western Europe and North America provide deliveries in this category, and their maternal mortality ratios are usually under 10 per 100 000.

Evidence from these countries suggests that low maternal mortality can be achieved with different cadres of health care providers. In the USA, for example, hospital care is largely provided by obstetricians, whereas midwives predominantly fill this role in Sweden and the United Kingdom. Moreover, the training, skills and roles of midwives differ between countries.

The widespread use of hospitals with comprehensive essential obstetric care is also common in many developing countries; indeed, most urban populations prefer childbirth to occur in facilities. Yet neither service of high quality nor a low maternal mortality ratio is guaranteed by having all births attended by professionals in hospitals. In Romania, the maternal mortality ratio reached nearly 180 per 100 000 in the 1980s because of unsafe abortions, even though Model 4 was in place (16). In Mexico City, where most women give birth in large public hospitals, the maternal mortality ratio in 1988 was 114 per 100 000 (17). Eighty-one per cent of maternal deaths during 1988–1989 occurred in four hospitals, and 85% of the deaths with clinical records were preventable. Responsibility for the deaths was attributed to physicians and/or hospitals and/or patients; physicians were responsible in 83% of cases, because of incorrect and/or inappropriate decisions regarding diagnosis and medical and/or surgical case management. Almost a third of the poor decisions were related to inappropriate treatment. A quarter of the deaths were caused by surgical misjudgement, while inaccurate diagnosis presented problems in relation to a fifth of the deaths.

Problems of over-medicalization and poor judgement have been reported from several other developing countries. It is clearly not enough to have the infrastructure for comprehensive essential obstetric care. Quality assurance mechanisms are needed to ensure that personnel have the skills for giving proper care, that equipment functions, that supplies are consistently available and that hospitals are well designed for the management of labour and delivery.

### **Discussion**

Clearly, Models 1, 2 and 3 use strong political support and long-term planning as a foundation for progress. There is coordination between all the levels of care. In China and Malaysia, the accountability of local

officials for performance was a significant management tool. Referral and comprehensive essential obstetric care were free in Forteleza (Brazil), Malaysia, Sri Lanka, and, at least initially, in China. Model 4 is demand-driven, women and families seeking what is perceived to be the most technically advanced facility available because of overriding concerns about safety.

Successful programmes also had built-in mechanisms for maximizing client and provider satisfaction. In Models 1 and 2, programmes provide outreach that supports, links to, and complements the dominant traditional system of birthing. Governments must typically work with traditional birth attendants who are members of communities and are not formally associated with the government infrastructure, although in China a new cadre of birth attendants was created. Traditional birth attendants are likely to view government health staff as competitors for the same clients; government personnel, on the other hand, may have a low opinion of traditional birth attendants. In order to ensure success in Model 1 it is important to determine the incentives that can bridge the divide between the formal and informal systems of birthing care and to coordinate both sides at all levels.

As governments manage the transition to predominantly professional providers of care, the type of provider most involved with birth and the site of birth is vitally significant. Successful Model 2 and 3 programmes began with a large expansion of rural health care for reasons of equity, including the posting of well-trained midwives to cover home births. The midwife, generally a woman, is well supported by a referral system that includes protocols for recognizing problem pregnancies and deliveries; she has access to some drugs for basic essential obstetric care functions and has a means of referral to more comprehensive care, including the use of transport. In Model 2, traditional practices remain dominant, and great care is taken to respect local customs through partnership with traditional birth attendants. Problems have arisen when such professional providers have been trained in clinics or hospitals that do not concern themselves with community considerations. A mismatch between the skills and orientation of the professional and the requirements of home births may lead to a failure of this formal system to attract women.

The transition from home births in Model 1 or 2 to facility births in Model 3 or 4 also requires infrastructural investment. However, a rapid and largely demand-driven move to Model 4 may occur. The resulting high maternal mortality ratios in many urban settings serve as a warning against making this change too quickly: caesarean section rates have continued to escalate and costs have risen sharply without there being any certainty of an improvement in the quality of care.

Models 1 to 4 represent stages in the medicalization of maternity care but this does not imply any notion of a value hierarchy. Indeed, not

every step may be feasible in every setting. Countries lacking a midwife cadre, for example, may bypass Model 2 and perhaps Model 3 as well. Most countries can be expected to have a mix of models, depending on socioeconomic conditions and on whether the environment is rural or urban. Moreover, in developed countries a concern has recently developed for maintaining a balance between normality in birthing and preparedness for the worst. Many women express a desire for overall safety and for less medicalization. It appears that once Model 4 is adopted it is difficult to revert to Model 3 or Model 2. However, the desire for normality in birthing is likely to manifest itself in new variations of Model 4, involving, for instance, the creation of a homely environment in the hospital maternity ward, or delivery in a birthing facility affiliated with and in close proximity to a referral hospital.

## Conclusions

Although Model 1, i.e. home delivery by non-professionals, has achieved some successes, there is no evidence that it can produce a maternal mortality ratio under 100 per 100 000 live births. On introducing a professional attendant, in Models 2–4, and establishing strong referral mechanisms, the ratio can be reduced to 50 or lower. It should be noted, however, that Model 4, arguably the most advanced, does not necessarily reduce the ratio to below 100 per 100 000 live births. Not all countries are ready for Model 4, and it is doubtful whether it can

be afforded by all developing countries. Moreover, few data are available that would make it possible to determine which of the configurations with professional attendance, i.e. Models 2–4, is most cost-effective, and what constraints exist with respect to training, skill maintenance, supervision, regulation, acceptability to women, and other factors. Furthermore, successful movement towards Models 2–4 requires strong links with the community, whether through traditional providers or popular demand.

It takes time to reduce maternal mortality. Most of the above national examples involved significant declines in maternal mortality over periods of 20–50 years during which many changes occurred. Improved service quality was only one of these, albeit the one most directly linked to the proximate determinants of maternal death. We believe that the changes in services contributed directly to reductions in maternal mortality. ■

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## Résumé

### Soins à l'accouchement : options efficaces pour une maternité sans risque

Le présent article décrit divers moyens d'administrer des services obstétricaux essentiels dans des contextes pour lesquels le taux de mortalité maternelle est relativement faible. Cette étude révèle quatre modèles élémentaires de soins : pour les décrire, on s'est appuyé sur les éléments d'organisation liés à l'endroit où les femmes accouchent et à la personne qui assure les accouchements. Dans le Modèle 1, l'accouchement se déroule à domicile en présence d'un membre de la communauté ayant reçu une formation de courte durée. Dans le Modèle 2, il a lieu à domicile, mais est exécuté par un professionnel. Dans le Modèle 3, il est assuré par un professionnel dans un petit établissement de soins obstétricaux et, dans le Modèle 4, toutes les femmes accouchent dans un grand établissement de soins obstétricaux complets avec l'aide de professionnels. Pour chacun de ces modèles, on part du principe que les dispensateurs de soins n'augmentent pas les facteurs de risque pour les femmes, que ce soit un risque iatrogène ou dû à des pratiques traditionnelles. Même si le Modèle 1 a enregistré certains succès, rien ne prouve qu'il puisse garantir un taux de mortalité maternelle inférieur à 100 pour 100 000 naissances vivantes. A condition qu'il existe de solides mécanismes d'orienta-

tion-recours, l'introduction d'un agent de santé professionnel peut permettre de diminuer considérablement le taux de mortalité maternelle. Les pays utilisant les Modèles 2-4, où il y a une présence professionnelle à l'accouchement, ont réduit le taux de mortalité maternelle à 50 ou moins pour 100 000 naissances vivantes. Toutefois, le Modèle 4, bien qu'il soit de toute évidence le plus élaboré, n'abaisse pas nécessairement le taux de mortalité maternelle à moins de 100 pour 100 000 naissances vivantes. Il semble que tous les pays ne soient pas prêts à adopter le Modèle 4 et l'on doute que, dans leur ensemble, les pays en développement en aient les moyens financiers. Rares sont les données qui permettent de déterminer quelle configuration dotée d'une présence professionnelle offre le meilleur rapport coût/efficacité et quelles sont les contraintes en ce qui concerne la formation, l'actualisation des connaissances, la supervision, la réglementation, l'acceptabilité pour les femmes, etc. Pour réussir la transition vers les Modèles 2-4, il faut établir des liens étroits avec la communauté soit par l'intermédiaire des dispensateurs de soins traditionnels, soit à la demande générale.



## Resumen

### Organización de la asistencia obstétrica: opciones eficaces para una maternidad sin riesgo

Se describen las diversas opciones disponibles para prestar servicios obstétricos esenciales en entornos donde la tasa de mortalidad materna es relativamente baja. El análisis realizado lleva a distinguir cuatro modelos básicos de asistencia, diferenciados fundamentalmente por características organizacionales relacionadas con el lugar donde las mujeres dan a luz y las personas que atienden el parto. En el modelo 1 los partos tienen lugar en el hogar y los atiende un miembro de la comunidad que ha recibido formación básica para ello. En el modelo 2 también se da a luz en el hogar, pero con la asistencia de un profesional. En el modelo 3 el parto es atendido por un profesional en un servicio básico de atención obstétrica esencial, y en el modelo 4 todas las mujeres dan a luz en un servicio integrado de atención obstétrica esencial con la ayuda de profesionales. En todos estos modelos se supone que la actuación de los prestadores de asistencia no entraña para las mujeres riesgos adicionales, ni iatrogénicos ni atribuibles a prácticas tradicionales. Aunque el modelo 1 se ha revelado eficaz en algunos casos, no hay indicios de que pueda reducir la tasa de mortalidad materna a menos de

100 por 100 000 nacidos vivos. Cuando los mecanismos de derivación funcionan bien, la intervención de una partera profesional puede reducir sensiblemente la tasa de mortalidad materna. Los países que aplican los modelos 2-4, en los que intervienen parteras profesionales durante el alumbramiento, han logrado reducir las tasas de mortalidad materna a 50 o menos por 100 000 nacidos vivos. Sin embargo, el modelo 4, aunque obviamente el más avanzado, no siempre reduce la tasa de mortalidad materna a menos de 100 por 100 000 nacidos vivos; parece que no todos los países están preparados para adoptar ese modelo, de dudosa asequibilidad en gran parte del mundo en desarrollo. Se dispone de pocos datos para determinar qué configuración con parteras profesionales es la más eficaz en relación con el costo, y cuáles son las limitaciones en lo tocante a formación, mantenimiento de las aptitudes, supervisión, regulación, aceptación por las mujeres, etc. Para que prospere la transición a los modelos 2-4 deben existir unos sólidos vínculos con la comunidad, mediados bien por los prestadores tradicionales de asistencia o bien por la demanda popular.

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