

Active Management of the Third Stage of Labor Is Rare in Some Developing Countries

In many developing countries, the majority of women who give birth in a health facility do not receive proper care during the last stages of labor, according to a study in which researchers observed deliveries in Benin, El Salvador, Ethiopia, Honduras, Indonesia, Nicaragua and Tanzania.¹ The International Federation of Gynecologists and Obstetricians (FIGO) and the International Confederation of Midwives (ICM) recommend that vaginal singleton births routinely receive active management during the third stage of labor: Birth attendants should administer the correct dose of a uterotonic drug within one minute of fetal delivery, provide controlled traction of the umbilical cord and fundal massage after delivery of the placenta, and perform uterine palpations every 15 minutes for two hours afterward. This set of techniques, aimed at preventing postpartum hemorrhage, was used correctly in only 1–32% of deliveries in the seven study countries, while potentially harmful practices occurred in 48–94% of deliveries. From these results, the investigators estimate that 1.4 million facility-based deliveries in these countries are mismanaged annually.

Between October 2005 and December 2006, the researchers observed nationally representative samples of vaginal deliveries in health facilities in the seven countries, ranging from 192 deliveries in 25 facilities in El Salvador to 408 deliveries in 27 facilities in Indonesia. At each facility, the investigators generally observed all deliveries that occurred within two eight-hour periods, although in Indonesia deliveries were observed 24 hours per day for five days to obtain the desired sample size. Only public facilities were included, except in Benin and Tanzania, where both public and private facilities allowed observation. With the exception of deliveries in Africa, some of which occurred at health centers, deliveries were observed at district or higher-level hospitals.

The researchers recorded the age and parity of women whose labors they observed, as well as the type of provider assisting with delivery. They interviewed midwives, nurses

and doctors about any training they had received in the previous year on active management of the third stage of labor. The researchers also interviewed officials and examined documents to determine national policies on active management.

The seven countries were selected to reflect diversity in maternal health and health infrastructure. Maternal mortality ratios varied from 71 maternal deaths per 100,000 live births in El Salvador to 637 deaths per 100,000 in Ethiopia. The proportion of deliveries occurring in public health facilities ranged from fewer than 5% in Ethiopia to 60–65% in Benin, Honduras and Nicaragua. Per capita spending on health in 2005 ranged from \$6 in Ethiopia to \$91 in Honduras.

Most of the deliveries observed by the researchers were by women aged 20–34 (61–85%). In Benin, Tanzania and Indonesia, midwives performed the largest proportions of deliveries (94%, 71% and 45%, respectively), whereas physicians were generally in attendance in the Central American countries (58–73%). In Ethiopia, nurses performed most deliveries (61%).

In-service training for active management of the third stage of labor was frequently provided at the facilities where deliveries occurred. Such training was most prevalent in Benin, where 61% of deliveries occurred in facilities that trained midwives, 98% in those that trained nurses and 82% in those that trained doctors. However, the personnel targeted for training were not always the ones who managed the most deliveries. For instance, although facilities in Benin were more likely to provide training in management of the third stage of labor to doctors and nurses than to midwives, the latter performed 94% of deliveries.

Overall, active management of the third stage of labor, as defined by FIGO and ICM, was correctly carried out in only a small minority of deliveries: 32% of those in Indonesia, 18% of those in Benin and 1–5% of those in the remaining five countries. The proportion of deliveries that met the less stringent Cochrane

definition of correct active management (use of a uterotonic, controlled cord traction, and cord clamping or cutting within one minute of delivery) was somewhat greater (45% in Benin, 41% in Indonesia), but remained below 10% in El Salvador, Nicaragua and Tanzania. These findings suggest that 1.4 million facility-based deliveries are mismanaged annually in the seven countries, even according to the standards of the less rigorous Cochrane definition.

The use of uterotonics was nearly universal (>95% of deliveries), except in El Salvador (60%). The prevalence of correct use, however, was substantially lower, varying from 7% in Tanzania to 61% in Benin. Use of other elements of active management also varied widely: Controlled cord traction was used in just 26% of deliveries in El Salvador, but in 70% or more of those in the African nations and Indonesia. Correctly timed fundal massage and subsequent palpations of the uterus—actions that indicate close observation of mothers in the risky postpartum period—were performed in 71% of deliveries in Indonesia, but in only 6–35% elsewhere.

In all study countries, the lack of correctly employed active management techniques was accompanied by the use of potentially harmful practices. In 12–81% of deliveries, researchers observed providers performing cord traction without supporting the uterus; in 10–73%, providers performed fundal massage after fetal (rather than placental) delivery. The proportion of deliveries that involved either of these harmful practices ranged from 48% in Tanzania to 94% in Nicaragua.

A multivariate analysis revealed that correct use of active management (using the Cochrane definition) was often less common in lower-level facilities than in national referral hospitals; the odds of correct use were particularly low in Beninese health centers (odds ratio, 0.2), Ethiopian regional hospitals (0.2), and Honduran regional and district hospitals (0.2 and 0.4, respectively), relative to those countries' national referral hospitals. Staff training in active management of the third stage of labor was generally not associated

with increased odds of correct use.

The review of labor management policies revealed that all seven countries had at least two uterotonics on their essential drug list, and six had standard treatment guidelines that included some definition of the active management of the third stage of labor. However, all but Indonesia had conflicting active management guidelines.

The researchers conclude that in the seven study countries, “health systems do not appear to have actively targeted reduction in postpartum haemorrhage as an achievable goal.” To improve use of active management of the third stage of labor—and thus to protect the health and lives of more women in labor—they propose that “behavior change interventions should be targeted to the cadres responsible for the most deliveries.” The researchers also support ongoing research into the relative contribution of each component of the active management regimen.—*H. Ball*

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Mexico's Oportunidades Program May Increase Use of Contraceptives

During the first two years of Mexico's Oportunidades cash transfer program, contraceptive use increased to a greater degree among titulares (women who are the head female of the household) living in communities where the program was offered than it did among their counterparts in communities where the program was not yet available, according to a recent analysis.¹ In addition, during the program's first year, greater improvements in titulares' household autonomy occurred in participating communities than in those where implementation had been delayed. However, the program had no apparent effect on birth spacing.

The Oportunidades program, launched in 1997 under the name Progresa, pioneered the approach of using conditional cash payments as a means of improving public health, particularly in poorer, rural communities. To receive monthly payments, participants must meet specified conditions (e.g., children have to attend school regularly, and family mem-

bers must get routine checkups). When it initiated the program, the Mexican government, for financial reasons, could not enroll all of the eligible communities. Thus, the government scheduled 320 communities to begin receiving benefits in 1998, and another 186 communities to begin participation in 2000. This approach created a randomized trial of sorts: The program's effects can be evaluated by comparing outcomes in communities where the program was launched in 1998 (“early recipients”) with those in communities that started receiving benefits in 2000 (“delayed recipients”), with the latter serving as a *de facto* control group.

Prior studies of the program's impact on contraceptive use have shown mixed results. In the current analysis, researchers examined reproductive health outcomes among titulares, reasoning that any benefits might be particularly apparent among this group because the cash payments are given directly to the head female of the household, perhaps increasing her autonomy—and thus her ability to control her fertility. Women aged 15–49 who identified themselves as the head of the household or who were married to the head of the household were included in the analysis, which used data from five surveys conducted between 1997 and 2003. Information about demographic and social variables, including women's age, education, literacy, monthly expenditures, number of children and employment, were obtained in two baseline surveys conducted in 1997 and 1998. Information was collected in 1998 and 1999 on women's autonomy, classified as lowest, low, medium or high on the basis of whether decisions about children's school attendance, their doctor visits and various types of household spending were made by the woman, her husband or jointly. Finally, reproductive health outcomes were assessed in two follow-up surveys: Current use of a modern contraceptive method and current use of any method were measured at baseline and in early 2000 and late 2003, while spacing between births was assessed in the latter survey. (Reproductive outcomes were assessed among only a fraction of respondents in 2003, as part of a special survey module.) At the time of the 2000 survey, early recipients had been receiving payments for two years, but delayed recipients had not yet received any benefits; by the 2003 survey, the two cohorts had been receiving payments for nearly six and four years, respectively.

In each survey, a member of every household in the 506 communities was surveyed, regardless of whether the program had been initiated in the community or whether the household itself was receiving benefits. More than three-fourths of households in the communities were eligible for the program, and 97% of eligible households enrolled. Overall, 8,568 titulares completed the two baseline surveys, 6,157 completed the 2000 follow-up survey, and 1,737 completed the 2003 reproductive health module.

Early and delayed recipients had similar characteristics: At baseline, about 60% were 30 or older, two-thirds were literate, 40% were indigenous and 99% lived with a husband. Only about half of titulares lived in homes with indoor bathrooms, and about 40% had no electricity. One-third said they wanted to have at least one child in the future, and nearly three in 10 already had five or more children.

In 1998, the prevalence of modern contraceptive use was similar in the early recipient (37%) and delayed recipient (39%) groups. Two years later, the prevalence had risen slightly among titulares in the early group (41%), but not among those in the delayed group (39%); the difference between the two groups in the change in prevalence was statistically significant. By 2003, prevalence of modern contraceptive use had increased in both groups, to 55% among early recipients and 49% among delayed recipients, but in this case the difference in the change was not statistically significant. In addition, the two groups did not differ in overall contraceptive use (i.e., use of any modern or traditional method).

Nearly half (48%) of titulares had a birth between 1998 and 2003; of these women, 41% had at least one additional birth. However, the mean interval between births did not differ between early recipients (29 months) and delayed recipients (28 months).

Between 1998 and 1999, autonomy levels increased to a greater degree in the early recipient group than among delayed recipients. The increase in autonomy did not influence the relationship between exposure to the Oportunidades program and contraceptive use. However, among titulares with the lowest level of autonomy at baseline, early recipients showed greater increases in contraceptive use during the program's first two years than did delayed recipients.

Overall, the results suggest that the Oportunidades program had a small but measur-

able effect on contraceptive use among titulares. “Our findings suggest that conditional cash transfers to women have a role in increasing their contraceptive use, especially among women who enter the program with low levels of autonomy,” the authors conclude. However, they add that additional innovations, such as new methods of conveying family planning information, “may be necessary to maintain and increase program affiliation that eventually leads to changes in fertility in this population.”—*P. Doskoch*

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Neonatal Mortality Is High In Latifabad, Pakistan, Despite Availability of Care

The rate of neonatal mortality in Latifabad, Pakistan, is about 47 deaths per 1,000 births, even though most pregnant women receive antenatal care and most births occur in hospitals with trained personnel, according to a population-based study conducted in 2003–2005.¹ The rate of perinatal mortality (stillbirths plus all neonatal deaths within 28 days of delivery) is 83 per 1,000 births, equivalent to one death per 12 births. The odds of such deaths are elevated among infants born before 37 weeks’ gestation (odds ratio, 5.0) or delivered by cesarean section (2.3); most deaths are related to immaturity (26%), asphyxia or hypoxia (lack of oxygen; 26%) or infection (23%).

Pakistan ranks third in the world in number of neonatal deaths—about 300,000 annually. The country’s neonatal mortality rate is generally estimated to be 45–50 per 1,000 births, but reliable population-based data on the number and causes of such deaths are lacking. The authors of the current study hypothesized that the rate would be lower than those levels in Latifabad (a town in Hyderabad), because women in the area have good access to obstetric care. With the help of government-employed lady health workers, who keep logs of pregnancies and provide basic maternal and child care through home visits, the researchers recruited pregnant women who were 16 or older, had no serious medical conditions, planned to deliver local-

ly and were at 20–26 weeks’ gestation. Eighty-three percent of eligible women enrolled in the study; participants provided demographic and health data, and underwent routine antenatal testing. Lady health workers tracked participants until delivery; a physician and nurse visited each woman within 48 hours of delivery to collect information on the delivery and the birth outcome, and made an additional visit about 28 days after delivery to assess longer-term outcomes. Overall, 28-day outcomes were obtained for 1,121 deliveries between September 2003 and August 2005. For all neonatal deaths and stillbirths, a physician and nurse interviewed the mother regarding the circumstances of the delivery, and a neonatologist and the lead investigator reviewed the maternal reports as well as hospital records to determine a likely cause of death.

The researchers examined univariate relationships between maternal characteristics (including age, education level, weight and number of antenatal care visits) and neonatal death, and between clinical and delivery variables (such as gestational age, birth weight, place of delivery, type of birth attendant, type of delivery and amniotic fluid characteristics) and neonatal mortality. Variables associated with neonatal death in univariate analyses were included in a multivariate analysis.

Of the deliveries with complete outcome data, 80% took place in hospitals or other health care facilities, and 19% were done by cesarean section. Most were attended by a doctor (60%) or a nurse or midwife (24%). Nonetheless, 53 resulted in neonatal death within 28 days of delivery—nearly half of them (45%) within 48 hours of delivery and three-quarters (74%) within the first week. In addition, 43 stillbirths occurred. These findings translate to rates of 47 neonatal deaths per 1,000 live births, 34 stillbirths per 1,000 births, and 83 cases of perinatal mortality per 1,000 births—one perinatal death per 12 births.

The vast majority (88%) of the 53 deceased infants had received treatment before death, and 75% died in a hospital. The researchers attributed 26% of the deaths to immaturity-related factors, 26% to lack of oxygen (asphyxia or hypoxia), 23% to infection, 8% to congenital abnormalities and the remaining 17% to other causes. Low birth weight was not considered an independent cause, but about half of neonatal deaths occurred among infants who weighed less than 2,500 g at birth.

No maternal characteristics were associated with neonatal mortality. Six clinical and delivery variables showed associations in univariate analyses, but in the multivariate analysis the only factors linked to mortality were gestational age of less than 37 weeks (relative risk, 5.0) and cesarean delivery (2.3).

The researchers call the 28-day neonatal mortality rate “striking,” given that the deaths occurred “in an urban cohort in which a high proportion of births took place in a health facility assisted by skilled attendants, and a high proportion of sick neonates were cared for in the formal health-care system.” Indeed, the neonatal mortality rate (47 per 1,000 live births) was similar to most estimates for Pakistan as a whole, leading the researchers to suspect that the country’s neonatal mortality rate is actually higher than generally thought. In addition, the high proportion of neonatal deaths that occurred—despite the availability of antenatal, perinatal and postnatal care—suggests that “the quality [of care] may have been suboptimal.” Although interventions designed to reduce neonatal mortality often focus on increasing access to care, the researchers emphasize that “without improved quality, increased health-care coverage is unlikely to substantially improve perinatal and neonatal outcomes.”—*P. Doskoch*

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In Uganda, Contraceptive Use Is High Among Women Who Receive HIV Therapy

HIV-positive Ugandan women who receive highly active antiretroviral therapy (HAART) are more likely to use contraceptives than their counterparts who do not receive such therapy, according to a clinic-based study in Mbarara.¹ Overall, 85% of sexually active study participants reported having used contraceptives in the past three months, and the vast majority of contraceptive users (84%) had used a barrier method. Among women treated with HAART, the odds of contraceptive use in general, and of barrier method use in particular, were more than twice those among women who were not receiving HAART (odds ratios, 2.6 and 3.6, respectively).

Uganda was an early adopter of antiretroviral therapy, and free HAART became accessible to the majority of the population in 2005. Almost half of HIV-infected Ugandans are reproductive-aged women, the researchers note, and although the total fertility rate is high and contraceptive use is low in the general population, data on contraceptive use among women receiving HAART is lacking. Some evidence suggests that women who use HAART are more likely than nonusers to want children, but may also be more likely to use condoms.

To assess the relationship between antiretroviral therapy and contraceptive use in this population, the investigators interviewed 484 HIV-positive female patients aged 18–50 at the HIV clinic of a regional referral hospital in Mbarara from November 2005 to June 2006. Women were classified as HAART users if they had taken at least one antiretroviral medication for nine months or more. In addition to providing their medical history and social and demographic information, the women answered questions about their sexual and reproductive behavior, contraceptive use and fertility desires. Respondents' HIV status and treatment history were obtained from the interviews and confirmed from medical records. Women who were pregnant were excluded from the sample.

On average, the respondents (219 HAART users and 265 nonusers) were 34 years old and had three children; only 14% reported wanting more children. Most women belonged to the Kiga or Nkole tribes (81%) and were Christian (88%). About two-thirds had a primary school education or less (68%), were not married (61%) and had a monthly household income of no more than US\$50 (66%). Some 63% of women had a relatively advanced HIV infection (stage 3 or 4 on the World Health Organization scale), and 55% said they had abstained from sex in the past three months.

Among women who had been sexually active in the three months preceding the interview, 85% reported having used at least one contraceptive method during that time. Most contraceptive users (84%) had used a male condom or other barrier contraceptive, while 28% had used a hormonal method, most often the injectable. Ten percent reported that they had been sterilized or had used other methods, such as withdrawal. Dual use was common: Barrier methods were relied on by many users of hormonal contraceptives

(57%), sterilization (40%) and traditional or “other” methods (60%).

Multivariate logistic regression analyses revealed that two variables were associated with use of any contraceptive method and with barrier contraceptive use. The odds of contraceptive use were elevated more than twofold among women who were receiving HAART (odds ratio, 2.6), and nearly threefold among those who did not want any more children (2.8). Similarly, HAART users and women who did not want more children had elevated odds of having used barrier methods (3.6 and 2.7, respectively).

Limitations of the study include the use of cross-sectional data from a single hospital. Moreover, universal HAART access is a recent phenomenon, the investigators note, and rates of contraceptive use may be different among women who have been using HAART for many years. In addition, women receiving this treatment had free access to condoms and counseling at the clinic, which may have led them to answer questions in a socially desirable manner. Still, the researchers point out that the high prevalence of dual method use, and the fact that Ugandans often use condoms to protect against HIV rather than pregnancy, indicate the need for integrated HIV and reproductive health services that help HIV-positive women “achieve their fertility goals” and “support their right to be sexually active.”—*S. Ramashwar*

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Prevalence of Adolescent Sexual Behaviors May Be Rising in Asian Cities

In Asia, rapid change in adolescent romantic and sexual behaviors has accompanied the transition from a traditional Confucian to a more modern society, according to a study of young people in metropolitan areas in Vietnam (Hanoi), China (Shanghai) and Taiwan (Taipei).¹ As a result, levels of these behaviors were more common among a recent cohort of adolescents than they were among their counterparts from just a few years earlier. For example, the researchers found that 15–19-year-

olds in their sample often were more likely to have dated or to have engaged in fondling or intercourse by age 18 than were 20–24-year-old respondents, who had matured at a slightly earlier stage of societal modernization. A similar relationship between adolescent behavior and modernization: Sexual behaviors were most prevalent in relatively modern Taipei, and least prevalent in less developed Hanoi.

The researchers interviewed a total of 17,016 young people aged 15–24 from the three major metropolitan areas. In Hanoi and Shanghai, participants were recruited using a multistage household sampling process, with statistically appropriate numbers recruited from factory housing and university dorms; participants in Taipei were recruited primarily from schools and universities, but an appropriate number of nonstudents were interviewed as well. About one-quarter of participants were recruited from rural sites, as all three metropolitan areas contained districts that were largely agricultural or were relatively sparsely populated.

Respondents were asked to report on the ages at which they had engaged in various behaviors (if at all), including romantic and sexual behaviors (dating, fondling and first intercourse) and nonsexual risk behaviors (smoking and drinking). They also provided information on their age at sexual maturation and household economic status (measured as the number of assets in the respondent's home at age 14). To explore short-term societal changes in sexual and risk behaviors, the investigators used survival analyses to examine differences between two cohorts of similar age (15–19 and 20–24). They also calculated descriptive statistics, and conducted Cox regression analyses to identify factors associated with specific behaviors; the models included gender, age cohort, residence (urban or rural), study site and in some cases number of household assets.

In general, the more modern the study site, the greater the proportion of participants who had dated or engaged in fondling or coitus by age 16 or 18. For instance, the proportion of 20–24-year-old males who had dated by age 18 was greater in Taipei (65%) than in Shanghai (33%) or Hanoi (36%); a similar pattern, albeit with smaller differences among sites, was apparent for 15–19-year-old males (69%, 62% and 56%, respectively). In both Shanghai and Hanoi, the prevalence of the three romantic and sexual behaviors was generally higher among younger than older

participants; in Taipei, this was true for dating, but not for fondling or intercourse.

In all three societies, the proportion of males reporting each act was greater in both age-groups than the proportion of females. For example, while 2–5% of males in Hanoi reported having had sex, fewer than 1% of females did so; a similar pattern was evident in Shanghai (5–11% of males vs. 2–6% of females) and, to a lesser extent, Taipei (23–24% vs. 17–22%). The gap between the sexes tended to be smaller in the more modern cities: Among the younger cohort, for example, the difference between the proportions of males and females who had experienced fondling by age 18 was 15 percentage points in Hanoi, 10 in Shanghai and fewer than three in Taipei. Differences between urban youth and rural youth also tended to be less pronounced at the more modern sites. As with sexual and romantic behaviors, levels of smoking and drinking increased with the level of modernization both across sites and over time, and the gap between males and females appeared to shrink.

Surprisingly rapid changes in young people's age at sexual maturity accompanied modernization in all sites, perhaps because of improvements in diet. For male respondents, self-reported age at first ejaculation was lower among 15–19-year-olds than among 20–24-year-olds in Hanoi (15.5 vs. 15.9), Shanghai (15.6 vs. 16.2) and Taipei (14.7 vs. 15.3). Similarly, for females, age at menarche was lower in the younger age-group than in the older

one in Hanoi (14.4 vs. 15.0) and Shanghai (14.2 vs. 14.4), although not in Taipei (13.3 in both age-groups).

A multivariate analysis that pooled data from the three sites revealed that members of the older cohorts were significantly less likely than those in the younger cohorts to have dated (hazard ratio, 0.6), fondled (0.6) or had sex (0.8) by age 18. Males were more likely than females to have dated (1.2), fondled (1.7) or had sex (1.5), they note, and urban respondents were more likely than their rural counterparts to have dated (1.2) or fondled (1.2). In addition, large differences were apparent by study site: Compared with young people in Hanoi, those in Shanghai and Taipei were more likely to have dated (1.1 and 2.4, respectively) or had sex (2.5 and 11.7) by age 18. The likelihood of fondling was higher in Taipei (1.8) than in Hanoi, although there was no difference between the latter and Shanghai.

When the analyses were further adjusted to take into account household assets—an indicator of modernization—the hazard ratios stayed the same for age-group and gender, but the differences between urban and rural residents disappeared. The greatest change was in study site: Although adolescents in Taipei remained significantly more likely than those in Hanoi to have dated (hazard ratio, 1.1) or to have had sex (7.6), the differences were much smaller than in the previous analysis, and they were now less (rather than more)

likely to have engaged in fondling (0.9). Young people in Shanghai had a slightly lower likelihood of having dated or engaged in fondling (0.9 and 0.8, respectively) than those in Hanoi, but despite this, they were more likely to have experienced coitus (2.2).

The researchers posit that exchange with the international community is lessening traditional values in Asia regarding sexual and risk behaviors, thus leading to increased prevalence of such behaviors among adolescents; this trend, they note, appears to affect male and urban adolescents first. Moreover, the findings suggest that adolescent sexual activity may continue to increase as these societies have further contact with the outside world and become more modern—a transition that began relatively recently in Hanoi, is well underway in Shanghai and has occurred to an even greater degree and for a longer time in Taipei. The investigators caution that policies and programs for adolescents must be sensitive to the sometimes extensive differences between adjacent age-groups of young people, because “the rapid changes reported here demonstrate that treating adolescence and youth as a single period not only poses the usual hazard of minimizing individual developmental change but also carries the risk of overgeneralization.”—*H. Ball*

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