

# Use of active management of the third stage of labour in seven developing countries

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**Objective** To document the use of active management of the third stage of labour for preventing postpartum haemorrhage and to explore factors associated with such use in seven developing countries.

**Methods** Nationally representative samples of facility-based deliveries were selected and observed to determine the use of active management of the third stage of labour and associated factors. Policies on active management were assessed through document review and interviews with relevant professionals.

**Findings** Use of a uterotonic during the third or fourth stages of labour was nearly universal. Correct use of active management of the third stage of labour was found in only 0.5% to 32% of observed deliveries due to multiple deficiencies in practice. In every country except Indonesia, policies regarding active management were conflicting.

**Conclusion** Developing countries have not targeted decreasing postpartum haemorrhage as an achievable goal; there is little use of active management of the third stage of labour, and policies regarding such management often conflict. Studies are needed to identify the most effective components of active management so that the most efficient package of practices can be promoted.

Une traduction en français de ce résumé figure à la fin de l'article. Al final del artículo se facilita una traducción al español. الترجمة العربية لهذه الخلاصة في نهاية النص الكامل لهذه المقالة.

## Introduction

Postpartum haemorrhage is one of the leading causes of maternal death worldwide; it occurs in about 10.5% of births and accounts for over 130 000 maternal deaths annually.<sup>1</sup> Active management of the third stage of labour is highly effective at preventing postpartum haemorrhage among facility-based deliveries. In a systematic review of randomized controlled trials, active management of the third stage of labour was more effective than physiological management in preventing blood loss, severe postpartum haemorrhage (> 500 ml) and prolonged third stage of labour.<sup>2</sup> Routine use of active management of the third stage of labour for all vaginal singleton births in health facilities is recommended by the International Federation of Gynecologists and Obstetricians (FIGO) and the International Confederation of Midwives (ICM),<sup>3</sup> as well as by WHO.<sup>4</sup> Also, this practice is included in the maternity care package against which all other maternity-related interventions were compared in a recent cost-effectiveness analysis as part of the Disease Control Priorities in Developing Countries Project.<sup>5</sup> Around 2000, approximately half of all births in the developing world took place in a health facility;<sup>6</sup> thus, routine

active management of the third stage of labour could avert maternal deaths and morbidity.

The definition of active management of the third stage of labour varies. In the systematic review mentioned above, the definitions included use of a uterotonic drug immediately following delivery of the fetus, controlled cord traction and early cord clamping and cutting.<sup>2</sup> The FIGO–ICM definition includes use of a uterotonic immediately following delivery of the fetus, controlled cord traction and fundal massage immediately after delivery of the placenta, followed by palpation of the uterus every 15 minutes for 2 hours to assess the continued need for massage.<sup>3</sup> Cord clamping is excluded based on research indicating that delayed clamping benefits preterm (and probably term) infants.<sup>7</sup> There has been little research into the effects of the individual components of active management of the third stage of labour. One systematic review of the use of controlled cord traction alone identified only two studies and was inconclusive as to the effectiveness or safety of the practice.<sup>8</sup>

Although active management of the third stage of labour is effective and has been widely promoted, data on

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(Submitted: 29 February 2008 – Revised version received: 25 June 2008 – Accepted: 9 July 2008 – Published online: 13 February 2009)

the use of the practice are limited. One report on its use in 15 university teaching hospitals in 10 countries showed rates of use ranging from 0% to 98% (25% across all hospitals), with no pattern of difference between developing and developed countries.<sup>9</sup> A study in a large public teaching hospital in Egypt reported active management of the third stage of labour in 15% of all deliveries,<sup>10</sup> and another in three maternity hospitals in Istanbul, Turkey, documented the use of oxytocics in 95% of deliveries during the third stage of labour.<sup>11</sup>

This study aims to document the use of active management of the third stage of labour in a nationally representative sample of facility-based deliveries in a diverse group of developing countries and to identify common practices and policies associated with such use. The ultimate aim is to promote the development of international strategies to decrease postpartum haemorrhage through expanded use of active management.

## Methods

Seven countries – Benin, El Salvador, Ethiopia, Honduras, Indonesia, Nicaragua and the United Republic of Tanzania – were selected for study to represent different geographic areas, indicators of maternal health and health infrastructure. The study involved a review of national policy documents and the observation of a nationally representative sample of approximately 200<sup>1</sup> facility-based vaginal deliveries. Standardized questionnaires were used for all data collection. A two-stage, probability-based sample of vaginal deliveries was selected. First, a sample of health facilities with one to three deliveries per day was chosen. Then all deliveries in the facility were observed for two 8-hour periods (generally from 7:00 to 23:00) over 2 days to select a sample of deliveries within that facility. Sample size calculations for this study assumed a 30% rate of active management of the third stage of labour, a 90% response rate and a design effect of two. Informed consent was obtained at hospital admission from the women who were observed. In Indonesia, data collectors observed deliveries for 24 hours a day over 5 days because of the low institutional birth rate. Data collectors also interviewed hospital administrators

Table 1. **Pregnancy-related mortality ratios, institutional delivery rates and health expenditure in seven developing countries**

Setting	Deaths (per 100 000 live births)	Deliveries in public health facilities <sup>a</sup> (%)	Deliveries in private health facilities <sup>a</sup> (%)	2005 per capita expenditure on health (US\$)
<b>Africa</b>				
Benin	397	64.5	13.6	28
Ethiopia	637	4.8	0.5	6
United Republic of Tanzania	578	37.8	9.3	17
<b>Asia</b>				
Indonesia	307	9.2	30.5	26
<b>Central America</b>				
El Salvador	71	54	15	NA
Honduras	147	61.3	5.2	91
Nicaragua	81 <sup>b</sup>	59.8	6.5	75

NA, not available; US\$, United States dollars.

<sup>a</sup> Indicators are restricted to live births.

<sup>b</sup> Maternal mortality ratio.

Data sources: references 12 to 19.

Table 2. **Description of sample of health-facility-based deliveries in study of the active management of the third stage of labour in seven developing countries, 2005 and 2006<sup>a</sup>**

Setting	Facilities in sample	Facilities in sampling frame	Births occurring in facility types in the AMTSL sample <sup>b</sup>		Observed deliveries
			Percentage of all births	Percentage of all health-facility-based births	
<b>Africa</b>					
Benin	26	26	58.3	89.9	250
Ethiopia	23 <sup>c</sup>	22	4.4	91.7	310
United Republic of Tanzania	29	NA	23.0	60.7	249 <sup>c</sup>
<b>Asia</b>					
Indonesia	27	40	6.2	15.6	408
<b>Central America</b>					
El Salvador	25	25	NA	NA	192
Honduras	15	18	49.0	80.0	221
Nicaragua	28	40	51.7	86.5	180

AMTSL, active management of the third stage of labour; NA, not available.

<sup>a</sup> Data collected from October to December 2005 for Ethiopia and the United Republic of Tanzania, and from July to December 2006 for the remaining countries.

<sup>b</sup> Data on place of delivery from nationally representative surveys of women of reproductive age were used to calculate the percentage of all births and of all facility-based births that occur in the types of health facilities selected in the facility sample in each country.

<sup>c</sup> Sample includes one additional facility in a region that otherwise would not have been represented.

about any in-service training in the active management of the third stage of labour provided for midwives, nurses and physicians over the previous year. Training in data collection for teams of physicians, nurses and midwives lasted 3 days. Data were collected between Oc-

tober and December 2005 in Ethiopia and the United Republic of Tanzania, and between July and December 2006 in the remaining countries.

To assess the policy environment for routine use of active management of the third stage of labour, study teams

Table 3. Characteristics of the woman and facility for deliveries observed in a study of the active management of the third stage of labour in seven developing countries, 2005 and 2006<sup>a</sup>

Characteristic	Setting						
	Africa			Asia	Central America		
	Benin	Ethiopia	United Republic of Tanzania	Indonesia	El Salvador	Honduras	Nicaragua
<b>Age of woman, in years (%)</b>							
< 20	7.6	8.1	17.4	4.4	17.5	23.1	30.2
20–34	84.8	83.5	75.3	77.0	77.8	70.6	60.6
35+	7.6	8.4	7.3	18.6	4.7	6.3	9.2
<b>Gravidity</b>							
0	23.2	36.1	28.7	42.4	30.2	41.6	40.4
1	22.4	26.1	27.7	30.9	37.8	27.6	24.2
2 to 4	47.6	31.9	33.3	24.5	28.0	25.3	27.9
5+	6.8	5.8	10.3	2.2	3.9	5.4	7.5
<b>Provider qualification (%)</b>							
Obstetrician	<0.1	6.5	0.0	4.2	6.1	1.4	11.1
Other physician	0.0	18.4	1.1	34.8	73.2	57.9	65.5
Midwife	94.0	8.3	71.1	44.6	0.0	0.0	0.0
Nurse	<0.1	60.8	11.1	<0.1	1.4	28.5	4.9
Other	4.8	6.0	16.7	16.2	18.0 <sup>b</sup>	12.2 <sup>b</sup>	18.0 <sup>b</sup>
Missing	0.0	0.0	0.0	0.0	1.3	0.0	0.5
<b>Type of facility (%)</b>							
National referral hospital	5.2	38.7	5.7	10.3	2.2	14.5	5.8
Regional or provincial hospital	12.4	35.2	39.1	32.3	16.9	39.8	94.2
District hospital	25.2	20.6	52.4	57.4	80.9	45.7	0.0
Health centre or other	57.2	5.5	2.9	0.0	0.0	0.0	0.0
<b>In-service training for AMTSL: midwives (%)</b>							
Yes	60.8	55.2	38.8	76.7	9.3	0.0	0.0
No	39.2	44.8	61.2	23.3	90.7	100.0	100.0
<b>In-service training for AMTSL: nurses (%)</b>							
Yes	97.6	25.5	38.8	15.9	75.2	42.1	59.3
No	2.4	74.5	61.2	84.1	24.8	57.9	40.7
<b>In-service training for AMTSL: doctors (%)</b>							
Yes	82.0	19.7	16.0	52.0	63.9	31.8	76.7
No	18.0	80.3	84.0	48.0	36.1	68.2	23.3

AMTSL, active management of the third stage of labour.

<sup>a</sup> Data collected from October to December 2005 for Ethiopia and the United Republic of Tanzania, and from July to December 2006 for the remaining countries.

<sup>b</sup> Includes medical interns.

reviewed policy documents and interviewed authorities in the ministries of health or education regarding the content of the essential drug list, standard treatment guidelines and the curricular coverage of the active management of the third stage of labour in publicly sponsored pre- and in-service training programmes.

To assure national representation, analytic weights were calculated and applied to the data sets for observed deliveries. Descriptive statistics and unadjusted odds ratios (OR) are presented.

## Results

### Country characteristics

Pregnancy-related mortality ratios range from around 100 deaths per 100 000 live births in Central America to over 600 in Africa.<sup>12–18</sup> Table 1 shows that the public institutional birth rate varies from approximately 5% in Ethiopia to 65% in Benin. The private institutional birth rate in five of the seven countries included in this study is low, with a range from only about 5% to about 15%. There is virtually no use of private facilities in Ethiopia. Per

capita expenditure on health ranges from 6 United States dollars (US\$) in Ethiopia to US\$ 91 in Honduras.<sup>19</sup>

### Observation of deliveries

In all but two countries (Benin and the United Republic of Tanzania), the sample was restricted to public facilities due to difficulties in compiling a list of private facilities with delivery services and in obtaining permission to observe deliveries in private facilities. The samples generally included deliveries occurring at district or higher level hospitals,

Table 4. Components of active management of the third stage of labour according to the FIGO–ICM definition and associated study criteria used to measure compliance

Component	Criteria
Use of uterotonic	Preferably oxytocin, with ergometrine and misoprostol or other prostaglandins as second line drugs
Dose of uterotonic	Oxytocin: 10 IU Ergometrine: 0.2 mg Misoprostol: 600 µg
Stage of labour	Immediately after fetal delivery
Timing of uterotonic	Within 1 min of fetal delivery
Mode of administration	Oxytocin and ergometrine: IM injection; IV injection, IV drip or IV push after induction or augmentation Misoprostol tablets: oral
Controlled cord traction	Gentle application of traction to cord with manual support to the uterus
Fundal massage immediately after placental delivery	As described
Uterine palpation every 15 min for 2 h after placental delivery	For practical purposes in this study, observers were to record if the provider palpated the uterus at least twice during the first 30 min postpartum

FIGO, International Federation of Gynecologists and Obstetricians; IM, intramuscular; ICM, International Confederation of Midwives; IU, international unit; IV, intravenous.

and only in the three African countries did the samples include deliveries based in health centres.

Table 2 shows the number of facilities selected in each country and the representativeness of the samples of observed deliveries. In the United Republic of Tanzania, one selected

hospital was not visited due to a strike, and in Indonesia one selected hospital refused to participate. In four countries, the selected facilities constitute all of the facilities of those types in the country.

Table 3 shows the distribution of observed deliveries by characteristics of the woman and the health facility.

The age distribution of the women is as expected, with most deliveries in women aged 20 to 34 years. However, characteristics of the delivery provider and facility varied substantially across countries due to differences in the organization of the health system and its staff. For example, physicians or

Table 5. Correct use of individual components of active management of the third stage of labour in seven developing countries, 2005 and 2006<sup>a</sup>

Practice	Observed deliveries with correct use of AMTSL <sup>b</sup>						
	Africa			Asia	Central America		
	Benin	Ethiopia	United Republic of Tanzania	Indonesia	El Salvador	Honduras	Nicaragua
<b>Components of correct use of a uterotonic drug</b>							
Correct stage (i.e. after fetal delivery) (%)	88.6	69.7	37.6	91.5	44.2	51.4	43.9
Correct dose (%)	91.5	73.3	68.9 <sup>c</sup>	77.3	48.5	87.3	91.7
Correct mode of administration (%)	95.9	95.8	84.7	86.3	43.7	95.2	96.6
Correct timing of administration (%)	63.2	40.8	10.4	67.3	13.9	25.1	15.6
Controlled cord traction (%)	65.3	67.8	68.8	80.3	26.4	44.4	17.9
Fundal massage immediately after placental delivery (%)	81.8	72.1	87.6	77.8	61.2	38.7	54.0
Immediate fundal massage, plus palpation of uterus at least twice in 30 min after placental delivery (%)	34.6	8.7	10.4	70.8	23.2	6.1	10.2
Observed deliveries	250	310	249	408	198	221	180
<b>Any use of uterotonic during the 3rd or 4th stage of labour (%)</b>	<b>96.2</b>	<b>99.8</b>	<b>96.8</b>	<b>99.7</b>	<b>60.1</b>	<b>95.7</b>	<b>100.0</b>
<b>Overall correct use of uterotonic for AMTSL purposes (%)</b>	<b>61.3</b>	<b>38.6</b>	<b>6.5</b>	<b>52.6</b>	<b>13.4</b>	<b>20.1</b>	<b>11.5</b>

AMTSL, active management of the third stage of labour.

<sup>a</sup> Data collected from October to December 2005 for Ethiopia and the United Republic of Tanzania, and from July to December 2006 for the remaining countries.

<sup>b</sup> According to the FIGO–ICM definition of the AMTSL.

<sup>c</sup> Correct dose for ergometrine is defined as 0.5 mg only for the United Republic of Tanzania.

Table 6. Correct use of active management of the third stage of labour, based on three definitions, in seven developing countries, 2005 and 2006<sup>a</sup>

Setting	Percentage (95% CI)			Observed deliveries
	FIGO-ICM definition	FIGO-ICM definition (with timing relaxed to within 3 min)	Cochrane definition <sup>b</sup>	
<b>Africa</b>				
Benin	17.6 (9.7–29.8)	29.1 (17.8–43.7)	45.0 (34.5–56.0)	250
Ethiopia	4.5 (1.8–10.9)	5.7 (2.3–13.7)	31.9 (16.6–52.4)	310
United Republic of Tanzania	0.5 (<0.1–3.4)	1.9 (0.5–6.2)	5.5 (3.1–9.4)	249
<b>Asia</b>				
Indonesia	31.8 (23.7–41.3)	39.6 (29.5–50.6)	41.0 (33.3–49.1)	408
<b>Central America</b>				
El Salvador	2.6 (0.7–9.8)	6.5 (2.2–18.1)	7.0 (2.9–15.7)	192
Honduras	4.5 (1.2–14.8)	5.1 (1.6–15.5)	10.7 (5.0–21.4)	221
Nicaragua	0.8 (0.2–3.6)	1.7 (0.6–5.9)	1.4 (0.3–7.3)	180

CI, confidence interval; FIGO, International Federation of Gynecologists and Obstetricians; ICM, International Confederation of Midwives.

<sup>a</sup> Data collected October–December 2005 for Ethiopia and the United Republic of Tanzania, and July–December 2006 for the remaining countries.

<sup>b</sup> Correct use of a uterotonic, controlled cord traction and cord clamping or cutting within 1 minute of delivery of the fetus.<sup>2</sup>

medical interns manage most deliveries in Central American countries, whereas midwives and nurses are responsible for most deliveries in countries of sub-Saharan Africa.

Table 3 also shows whether different types of providers were given in-service training in active management of the third stage of labour during the preceding 12 months. In four countries, 60–77% of deliveries were in facilities that provided such training to the staff managing most deliveries, but these countries also provided the training to staff responsible for few deliveries. For example, in Benin, 98% and 82% of deliveries were in facilities that provided in-service training in active management of the third stage of labour to nurses and physicians, respectively, even though midwives manage 94% of deliveries in Benin.

Table 4 details the correct performance of each component of active management of the third stage of labour according to the FIGO-ICM definition. To be conservative, missing values for all variables in the definition of correct use were interpreted as incorrect use, although few data were missing from the observation checklists.

Table 5 shows the use of the various components of active management. Use of a uterotonic drug during the third or fourth stages of labour is common to all countries except El Salvador (60%), yet correct use varies widely. In the United Republic of Tanzania, 0.5 mg

of ergometrine was considered the correct dose because only ampoules of this size were available in all but two facilities; thus, in this country no deliveries were managed with the correct dose (0.2 mg). Incorrect use of a uterotonic also takes the form of incorrect timing of administration (i.e. > 1 minute after delivery of the fetus or after delivery of the placenta rather than the fetus). In five of the seven countries, 98–100% of women who received a uterotonic drug during the third or fourth stage of labour received oxytocin alone or in addition to ergometrine; misoprostol was used minimally in Benin and Indonesia, and misoprostol was rarely available or restricted in some settings. Syntometrine or other prostaglandins were not available in any of the seven countries (data not shown).

Table 5 also shows great variation in the use of controlled cord traction and immediate fundal massage and follow-up palpation. In particular, fundal massage immediately following delivery of the placenta, plus follow-up palpation of the uterus – which are considered a standard of care<sup>4</sup> and an indicator of surveillance during the high-risk postpartum period – were very rarely practiced.

Table 6 shows the extent to which the active management of the third stage of labour was performed correctly, based on three definitions of the practice. With the exception of Nicaragua,

results varied substantially depending on the definition used. In five countries, less than 5% of deliveries met the criteria for the FIGO-ICM definition, which is the most stringent. Relaxing the time of administration of the uterotonic to within 3 minutes after fetal delivery increased the use of active management of the third stage of labour, but in countries other than Benin and Indonesia, absolute use remained minimal. In all countries except Nicaragua, using the less stringent Cochrane definition increased the use of active management of the third stage of labour more than using other definitions.

Table 7 presents the unadjusted ORs for use of active management of the third stage of labour (using the Cochrane definition) by woman-, facility- and provider-related factors for countries where correct use of the practice is 10% or higher. The ORs in this table show no significant U- or J-shaped pattern of use by parity, which suggests that the practice is not used selectively for high-risk women. However, the data do suggest that active management is higher in national hospitals than in lower-level facilities, particularly in Benin, Ethiopia and Honduras. In these countries, deliveries in lower-level facilities were approximately 40–80% less likely to receive correct active management of the third stage of labour than deliveries in national hospitals, and nearly always the difference was at least borderline significant ( $P \leq 0.100$ ).

Table 7. Crude odds ratios for four developing countries with at least 10% of births with correct use of active management of the third stage of labour,<sup>a</sup> by woman and facility characteristics, 2005 and 2006<sup>b</sup>

Characteristics	Benin		Ethiopia		Honduras		Indonesia	
	Odds ratio	P- value	Odds ratio	P- value	Odds ratio	P- value	Odds ratio	P- value
<b>Age of woman, in years</b>								
<20 <sup>c</sup>	1.000		1.000		1.000		1.000	
20–34	0.641	0.288	1.857	0.196	0.609	0.190	0.873	0.775
35+	0.375	0.102	1.917	0.338	0.558	0.482	0.505	0.188
<b>Parity</b>								
0 <sup>c</sup>	1.000		1.000		1.000		1.000	
1	0.854	0.645	1.627	0.121	0.611	0.271	0.627	0.055
2 to 4	0.679	0.219	0.826	0.563	0.973	0.946	0.701	0.157
5+	1.265	0.646	0.845	0.766	0.333	0.308	0.734	0.642
<b>Provider qualification</b>								
Physician <sup>c</sup>	<sup>d</sup>		1.000		1.000		1.000	
Midwife	<sup>d</sup>		1.442	0.229	–		1.565	0.042
Nurse	<sup>d</sup>		0.745	0.575	1.235	0.649	–	
Other	<sup>d</sup>		3.571 <sup>e</sup>	0.018	2.754 <sup>g</sup>	0.014	0.950 <sup>f</sup>	0.867
<b>Facility type</b>								
National referral hospital <sup>c</sup>	1.000		1.000		1.000		1.000	
Regional or provincial hospital	0.405	0.066	0.177	0.000	0.209	0.000	1.650	0.108
District hospital	0.645	0.336	0.558	0.086	0.368	0.001	1.218	0.488
Health centre or other	0.231	0.000	0.363	0.060	–		–	
<b>In-service training for AMTSL: midwives</b>								
No <sup>c</sup>	1.000		1.000		–		1.000	
Yes	0.986	0.957	0.799	0.402	–		0.762	0.271
<b>In-service training for AMTSL: nurses</b>								
No <sup>c</sup>	1.000		1.000		1.000		1.000	
Yes	4.096	0.225	0.408	0.006	1.121	0.428	0.918	0.736
<b>In-service training for AMTSL: any physicians</b>								
No <sup>c</sup>	1.000		1.000		1.000		1.000	
Yes	1.211	0.563	4.800	0.000	0.272	0.000	0.871	0.492

AMTSL, active management of the third stage of labour.

<sup>a</sup> According to the Cochrane definition.<sup>2</sup>

<sup>b</sup> Data collected from October to December 2005 for Ethiopia and the United Republic of Tanzania, and from July to December 2006 for the remaining countries.

<sup>c</sup> Reference category.

<sup>d</sup> In Benin, midwives assisted 94% of all deliveries; students assisted 5%.

<sup>e</sup> "Other" includes health assistants.

<sup>f</sup> "Other" includes medical students and one nurse.

<sup>g</sup> "Other" includes medical interns.

Multivariate analysis of these factors did not change the interpretation described for the bivariate analysis.

The crude assessment of the provision of in-service training in active management of the third stage of labour for staff over the previous year provides no evidence to suggest that the training is effective (Table 7). Across all four countries and three cadres, only in Ethiopia were the odds of correctly applying the active management of the third stage of labour significantly higher in facilities that had offered active training for physicians than in those that had not.

Table 8 shows the results of documentation of potentially harmful practices. In some countries, cord traction without manual support to the uterus was common, as was the application of fundal pressure following delivery of the fetus. At least one of these two harmful practices was seen in 48–94% of observed deliveries.

### Policy environment

Table 9 shows the results of the assessment of the policy environment in the seven countries. All include oxytocin and ergometrine on the essential drug

lists. Three countries (Benin, Ethiopia and Honduras) include the FIGO–ICM definition of active management in the standard treatment guidelines. However, all countries except Indonesia have multiple guidelines and conflicting recommendations about the active management of the third stage of labour. In some cases, these multiple guidelines are simply outdated but still used at the facilities; in others, conflicting guidelines have been distributed. Indonesia is the only country that includes the active management of the third stage of labour in its pre-service

curricula for doctors, nurses and midwives. Nicaragua includes this practice in the curriculum for obstetric nurses, but these manage less than 5% of deliveries in the country.

Assessing in-service training was complicated because course content changes over time and is often inadequately documented. Most of the countries studied either assumed or had evidence that their in-service training curricula lacked standardization. Nevertheless, in-service training in the active management of the third stage of labour was provided in all seven countries, and between 39% and 83% of observed deliveries occurred in facilities with such training.

## Discussion

Use of the management of the third stage of labour appears to vary greatly between the countries studied, although seven clear patterns emerged. Prophylactic use of a uterotonic drug, generally oxytocin, during the third or fourth stage of labour is nearly universal. The practice of fundal massage immediately after delivery of the placenta and follow-up palpation is low in most countries, suggesting insufficient surveillance of women during the hours when most maternal deaths occur worldwide. Incorrect active management of the third stage of labour is due to multiple deficiencies in practice. Active management appears not to be selectively practiced for women considered at high risk but may be used to a greater extent in national hospitals than in lower level facilities. Potentially harmful practices that can increase the risk of postpartum haemorrhage or other third stage complications are observed in up to 94% of deliveries. In-service training in active management of the third stage of labour is often provided to staff responsible for few deliveries. Training in active management does not appear to contribute to the use of the practice, although the methods we used to study this factor were crude.

A limitation of this study is that the observed deliveries are not representative of all facility-based deliveries due to the small number of health centres and private institutions among sampled facilities. However, health personnel at lower level facilities have often trained at national level hospitals. Thus, it would be surprising if correct use of

Table 8. Observed deliveries with potentially harmful practices during active management of the third stage of labour in seven developing countries, 2005 and 2006

Setting	Percentage (95% CI)			Observed deliveries
	Cord traction, no uterine support	Fundal massage after fetal delivery	Either of 2 harmful practices	
<b>Africa</b>				
Benin	65.3 (48.1–79.2)	9.8 (4.9–18.6)	70.2 (53.2–82.9)	250
Ethiopia	29.4 (14.8–49.8)	37.8 (21.5–57.4)	55.0 (36.3–72.4)	310
United Republic of Tanzania	21.4 (15.9–28.0)	34.4 (27.5–42.1)	47.7 (40.0–55.6)	249
<b>Asia</b>				
Indonesia	12.2 (7.0–20.5)	44.0 (32.5–56.1)	50.5 (39.6–61.3)	408
<b>Central America</b>				
El Salvador	55.5 (43.9–66.6)	28.1 (17.5–42.0)	73.0 (61.1–82.3)	192
Honduras	47.4 (33.6–61.7)	30.1 (18.1–45.8)	69.8 (55.4–81.2)	221
Nicaragua	81.4 (67.4–90.3)	73.1 (60.6–82.8)	94.3 (84.1–98.1)	180

CI, confidence interval.

active management of the third stage of labour in lower level facilities was markedly higher than is documented in this study.

The findings have implications for both policy and research. Health systems do not appear to have actively targeted reduction in postpartum haemorrhage as an achievable goal. Several countries have unclear policies (including contradictory or outdated treatment guidelines). Furthermore, training in active management of the third stage of labour is often not included in pre-service education and is not standardized in the curricula for in-service training.

Further research is needed to determine why certain providers or teams within a facility have adopted active management of the third stage of labour, and why in-service training in such management has little effect on practice. Important insights could be gained from qualitative enquiry into provider practices where active management is common practice, such as the Dublin maternity centre, where its use was documented at nearly 100%,<sup>9</sup> and in those health facilities in this sample where its use reached 60–80%. Recently, there have been promising results from a cluster, randomized controlled trial of behavioural interventions to implement clinical guidelines regarding active management of the third stage of labour and selective use of episiotomy in Argentina and Uruguay.<sup>20</sup> The trial compared the effectiveness of a single

in-service training (the control group) with a multifaceted intervention that combined competency-based in-service training with academic detailing, audit and feedback regarding monthly compliance rates and identification of recognized opinion leaders to promote evidence-based practices. The multifaceted intervention was in place for 18 months. Prophylactic use of oxytocin for active management of the third stage of labour increased in the intervention hospitals from 2% to 84%, compared with 3% to 12% in control hospitals. These positive results were sustained 12 months following the intervention. Most importantly, a significant reduction in postpartum haemorrhage (> 500 ml blood loss) was documented in intervention relative to control hospitals.<sup>20</sup>

Since multiple deficiencies account for the low use of active management of the third stage of labour in every country, improvement will require a package of efficient practices. Behaviour change interventions should be targeted to the cadres responsible for most deliveries. In our sample, 61 to 94% of deliveries were managed by midwives in the sub-Saharan countries, whereas 70 to 92% were managed by general practitioners, residents or interns in the Central American countries (data not shown). Another issue is how much each of the components of active management of the third stage of labour contributes to its protective effect. Does the uterotonic drug alone provide all or most of the

Table 9. Policies related to active management of the third stage of labour in seven developing countries, 2005 and 2006<sup>a</sup>

Policy	Setting						
	Africa			Asia	Central America		
	Benin	Ethiopia	United Republic of Tanzania	Indonesia	El Salvador	Honduras	Nicaragua
Oxytocin and ergometrine are on essential drug list.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Standard treatment guidelines include definition of AMTSL.	Yes, includes FIGO-ICM definition	Yes, includes FIGO-ICM definition	Yes, but does not include FIGO-ICM definition	Yes (with uterotonic within 2 min of fetal delivery)	Yes, but does not include FIGO-ICM definition	Yes, includes FIGO-ICM definition	No
More than one standard treatment guideline exists, with conflicting guidance on AMTSL.	Yes, current and old	Yes, > 1 current	Yes, multiple and none meet FIGO-ICM definition	No	Yes, 2 current	Yes, current and out of date	Yes, 2 current
Pre-service curriculum includes definition of AMTSL.	No for doctors, nurses and midwives	No for doctors, nurses and midwives	No for doctors, nurses and midwives, but refers to resources with other AMTSL definition	Yes for doctors, nurses and midwives	No for doctors and nurses	No for doctors and nurses	Yes, but only for obstetric nurses

AMTSL, active management of the third stage of labour; FIGO, International Federation of Gynecologists and Obstetricians; ICM, International Confederation of Midwives.

<sup>a</sup> Data collected from October to December 2005 for Ethiopia and the United Republic of Tanzania, and from July to December 2006 for the remaining countries.

protection, or are the other components important as well? To answer this question, WHO has recently undertaken a study of the effects of these individual components.

Our study suggests that few women are benefitting even from the correct use of uterotonics, and fewer still from the additional components of active management. Based on deliveries occurring predominantly in district or higher level hospitals in only seven countries, we estimate that annually 1.4 million deliveries do not receive correct

active management of the third stage of labour, even when the less stringent Cochrane definition is applied.<sup>2</sup> This represents 1.4 million lost opportunities to prevent postpartum haemorrhage, which is the leading cause of maternal death. Ensuring the availability of misoprostol where oxytocin is not available or where temperature requirements for oxytocin storage are difficult to meet could help prevent postpartum haemorrhage. With nearly one in two developing country births occurring in a health facility, systems must be

in place to seize this opportunity and ensure that all facility-based deliveries receive active management of the third stage of labour. ■

**Funding:** This study was funded by the United States Agency for International Development under contract number GHS-I-O2-03-00028-00. The funders had no role in the design or conduct of this study.

**Competing interests:** None declared.

## Résumé

### Application de la prise en charge active du troisième stade du travail dans sept pays en développement

**Objectif** Documenter l'application de la prise en charge active du troisième stade du travail dans le but de prévenir les hémorragies post-partum et étudier les facteurs de risque associés à cette application dans sept pays en développement.

**Méthodes** Des échantillons représentatifs au niveau national des accouchements en établissement de santé ont été sélectionnés et observés pour évaluer l'utilisation de la prise en charge active du troisième stade du travail et identifier les facteurs associés. Les politiques en faveur de cette prise en charge ont fait l'objet d'une évaluation s'appuyant sur une revue bibliographique et des entretiens avec les professionnels concernés.

**Résultats** Le recours aux utérotoniques pendant le troisième ou le quatrième stade du travail était quasi-universel. On a relevé un

usage correct de la prise en charge active du troisième stade du travail pour seulement 0,5 à 32 % des accouchements observés en raison de nombreux défauts dans les pratiques. Dans tous les pays excepté l'Indonésie, les politiques concernant la prise en charge active étaient contradictoires.

**Conclusion** Les pays en développement ne visent pas la diminution des hémorragies post-partum en tant qu'objectif réalisable. Ils font peu usage de la prise en charge active du troisième stade du travail et les politiques concernant cette prise en charge sont souvent contradictoires. Des études sont nécessaires pour identifier les composantes les plus efficaces de la prise en charge active de manière à promouvoir un ensemble de pratiques le plus efficace possible.

## Resumen

### Manejo activo de la tercera etapa del parto en siete países en desarrollo

**Objetivo** Documentar el uso de métodos de manejo activo de la tercera etapa del parto para prevenir la hemorragia posparto y estudiar los factores asociados a ese uso en siete países en desarrollo.

**Métodos** Se seleccionaron y observaron muestras representativas a nivel nacional de partos ocurridos en servicios a fin de determinar la frecuencia de los casos de manejo activo de la tercera etapa del parto y los factores asociados. Las políticas sobre el manejo activo se evaluaron analizando diversos documentos y entrevistando a los profesionales pertinentes.

**Resultados** El uso de uterotónicos durante la tercera o cuarta etapas del trabajo de parto era casi universal. Pero el manejo activo de la tercera etapa del trabajo de parto sólo se hizo

correctamente en un 0,5%-32% de los partos observados, pues las prácticas adolecían de muchas deficiencias. En todos los países, salvo en Indonesia, las políticas relativas al manejo activo eran contradictorias.

**Conclusión** Los países en desarrollo todavía no se han focalizado en la disminución de la hemorragia posparto como un objetivo alcanzable; apenas se hace un manejo activo de la tercera etapa del trabajo de parto, y las políticas sobre dicho manejo son a menudo contradictorias. Es necesario emprender estudios para determinar los componentes más eficaces del manejo activo a fin de poder promover el conjunto más eficiente de prácticas en esa esfera.

## ملخص

### استخدام التدبير الفاعل للمرحلة الثالثة من المخاض في سبعة من البلدان النامية

للهدف: لتوثيق استخدام التدبير الفاعل للمرحلة الثالثة من المخاض للوقاية من النزف التالي للولادة ولاستقصاء العوامل التي تصاحب مثل هذا الاستخدام في سبعة من البلدان النامية.

الطريقة: تم انتقاء عينات ممثلة على الصعيد الوطني لولادات في المرافق الصحية وتمت مراقبتها للتعرف على استخدام التدبير الفاعل للمرحلة الثالثة من المخاض والعوامل المصاحبة له. وأجري تقييم للسياسات المتعلقة بالتدبير الفاعل من خلال مراجعة الوثائق وإجراء المقابلات مع المهنيين المعنيين. الموجودات: كان استخدام الأدوية المقوية لتوتر الرحم أمراً شائعاً تماماً في المرحلة الثالثة أو الرابعة من المخاض. وقد وجد أن الاستخدام الصحيح

للهدف: لتوثيق استخدام التدبير الفاعل للمرحلة الثالثة من المخاض للوقاية من النزف التالي للولادة ولاستقصاء العوامل التي تصاحب مثل هذا الاستخدام في سبعة من البلدان النامية.

الطريقة: تم انتقاء عينات ممثلة على الصعيد الوطني لولادات في المرافق الصحية وتمت مراقبتها للتعرف على استخدام التدبير الفاعل للمرحلة الثالثة من المخاض والعوامل المصاحبة له. وأجري تقييم للسياسات المتعلقة بالتدبير الفاعل من خلال مراجعة الوثائق وإجراء المقابلات مع المهنيين المعنيين. الموجودات: كان استخدام الأدوية المقوية لتوتر الرحم أمراً شائعاً تماماً في المرحلة الثالثة أو الرابعة من المخاض. وقد وجد أن الاستخدام الصحيح

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