



# Estimation of National Coverage of Uterotonic in the Third Stage of Labour:

Report of the Meeting of the Expert Panel

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**JHARKHAND STATE, INDIA**

June 2013

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# Executive Summary

Postpartum haemorrhage (PPH) continues to be one of the major causes of maternal deaths. The routine use of uterotonic in the third stage of labour in all deliveries is recommended for the prevention of PPH. Though this recommendation is being widely adopted in Jharkhand, the public health program is not tracking its usage. This important output indicator is not part of the routine Health Management Information System (HMIS) nor of any other quality checklist.

The Directorate of Health Services at Jharkhand with the Maternal and Child Health Program (MCHIP)-United States Agency for International Development (USAID) decided to conduct a qualitative assessment of the use of uterotonic in the third stage of labour (UUTSL) across Jharkhand. A group of field experts met on 6<sup>th</sup> June 2013 to determine this process indicator, based on their field experience and existing data available. The estimation factored in related policy directives and the quality of uterotonics used. Table 1 shows the findings of this assessment.

**Table 1: Coverage estimate for use of uterotonic in the third stage of labour for prevention of postpartum haemorrhage in Jharkhand**

	% Births	% Effective Provision of UUTSL	Contribution to State Coverage
Home births - Attended by skilled birth attendant (SBA)	15.3%	85%	13.0%
Home births - NOT attended by SBA	46.7%	0%	0%
Private facilities	20.8%	90%	18.7%
Public facilities - Attended by SBA	15.8%	75%	11.8%
Public facilities - NOT attended by SBA	0.2%	0%	0%
<b>COVERAGE ESTIMATE: Effective rate of UUTSL</b>			<b>43.5%</b>

The review of existing policy informed us that oxytocin is the recommended uterotonic for prevention of PPH, and is part of the protocol of active management of the third stage of labour at public as well as private facilities. Misoprostol is recommended for use at health sub-centres and home deliveries attended by skilled birth attendants (SBAs), where the ideal storage of oxytocin is not possible.

The estimation of uterotonic use is only worthwhile if it leads to programmatic action and efforts to improve the coverage of this fundamental maternal health intervention. The group of field experts suggested that an awareness campaign on UUTSL is needed along with a program that ensures availability of misoprostol for women who choose to deliver at home. They also suggested that the use of uterotonics should be monitored and reviewed at all levels in the public health system.

This estimation exercise could be repeated every year until it becomes part of the health information system.

## BACKGROUND

The maternal mortality ratio in Jharkhand is declining, but the rate of decline is not great enough to achieve the Millennium Development Goal (MDG) 5 target<sup>1</sup>. To accelerate this decline, the National Rural Health Mission (NRHM) needs to reinforce efforts to reduce the principal causes of maternal mortality, chief among these postpartum haemorrhage (PPH). The most effective intervention for preventing PPH is the administration of a uterotonic to a woman immediately following delivery, either as part of active management of the third stage of labour (AMTSL)<sup>2</sup> for women who deliver in a health care facility, or through a program for the advanced distribution of misoprostol for women who deliver at home. Three uterotonic drugs are generally accepted as effective uterotonics—oxytocin, misoprostol, or ergometrine, with oxytocin being the drug of choice according to global recommendations.

To increase the provision of AMTSL to women who deliver in facilities, the NRHM in Jharkhand is working to ensure that all auxiliary nurse midwives (ANMs) go through skilled birth attendant (SBA) training, and that all public sector service delivery points in the state have constant monitoring and support of labour rooms to promote the consistent use of uterotonics. The NRHM has recently approved the use of misoprostol for advanced distribution by ASHAs in the community, but has yet to work out the mechanism for how this program will be implemented and rolled out.

At the same time it is important to recognize that despite promotion of use of AMTSL in hospitals, all women may not be able to access this service, because of provider behaviour or access to care. Therefore, it is important to promote other options to ensure that all women are protected from PPH following birth, including birth at home. In this situation the advanced provision of misoprostol for self-administration by the women at the time of birth is recommended.

In 2012 the World Health Organization (WHO), through the publication of its *WHO Recommendations for the Prevention and Treatment of Postpartum Haemorrhage*, stated that: “Monitoring the use of uterotonics after birth for the prevention of PPH is recommended as a process indicator for programmatic evaluation.”

Therefore, the real coverage of use of uterotonic in the third stage of labour for prevention of PPH must be measured in order to be monitored. These interventions must be estimated and programs must consider mechanisms to ensure availability of a uterotonic to all women who deliver, regardless of the location.

Because there are little available data on the use of uterotonics, and therefore an inability to directly measure the coverage of this intervention, an estimation exercise must be carried out. This exercise was conducted in collaboration with the NRHM/Jharkhand, the Department of Health/Jharkhand, and key development partners. It should serve as a baseline for the monitoring of program activity and the identification of new program areas for focus.

## METHODOLOGY

### Objective and Key Questions for the Expert Panel

The objective of the meeting of the expert panel at the Hotel Capitol Hill, Ranchi, Jharkhand, 6 June 2013, quite simply was ***to reach a consensus on the estimate of the statewide coverage for use of uterotonic in the third stage of labour (UUTSL)***. This estimate is

1 World Health Organization. 2012a. World health statistics 2012. Accessed January 2013: [http://www.who.int/gho/publications/world\\_health\\_statistics/2012/en/](http://www.who.int/gho/publications/world_health_statistics/2012/en/)

2 World Health Organization. 2012b. WHO Recommendations for the Prevention and Treatment of Postpartum Haemorrhage. Accessed January 2013: [http://www.who.int/reproductivehealth/publications/maternal\\_perinatal\\_health/9789241548502/en/index.html](http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/9789241548502/en/index.html)

meant to be a population-based estimate, covering all possible birth locations—that is, community-based deliveries and all facility-based deliveries, whether in the public or private sector.

The expert panel was asked to make estimates for the following key data elements, which were fed into a simple algorithm used to construct the national UUTSL coverage estimate:

- Proportion of **facility-based births by sector**: Classification of facility births by facility level was determined through HMIS data provided by the HMIS Unit of the State Division of Health
- Proportion of **community-based births**: Taken from Annual Health Survey 2010-2011 with the consensus of experts
- **Initial estimates for the coverage with UUTSL** (using oxytocin, ergometrine, or misoprostol) in each birth location with the consensus of experts present, taking into account reported skilled care coverage rates in facility births and any known community-based use of either misoprostol or other uterotonics
- **Consideration of any needed adjustments** to initial estimates of UUTSL, taking into account additional information such as frequency of stock-outs, birth attendance by cadres not authorized to use uterotonics, quality of drug used, etc.

The core of the method is an algorithm that consists of splitting all births into categories of settings thought to have significant differences in UUTSL coverage; then using the best available data to arrive at a consensus opinion of the UUTSL coverage in each of the settings; and finally summing all these contributions to arrive at the final national UUTSL coverage estimate. In short, this is a method for calculating an average of the UUTSL coverage estimates in each relevant setting, weighted by the proportion of births in that setting. This is conceptually simple, but was made difficult by the lack of data in some of the settings. To make the estimate most valid, the Jhpiego India Country Office (ICO) team gathered the best possible data and discussed the data with a widely representative group of knowledgeable experts.

## The Phases of the Estimation Exercise

A group of 31 experts was picked who would collectively have a wide range of knowledge and represent all sectors where births occur—community, public, private, nongovernmental organization (NGO). Twenty-five of the invitees participated. (Annexure 1)

Co-facilitated by the Jharkhand State MCHIP team and Jhpiego ICO along with the Directorate of Health Services, Jharkhand, the method the panellists used consisted of the following steps:

- A preparatory gathering of information before the meeting—desk review of the data available and estimation of the key data elements through a questionnaire sent to participants with the invitation.
- A three-phase process during the expert meeting:
  - Discussion to come to consensus on contextual information (policies, norms, cadres authorized, etc.), referring to documents gathered. The facilitators focused on those pieces of information that had the least consensus, as demonstrated in the responses to the preparatory questionnaire.
  - Discussion to come to consensus on location of births, divided into the categories with significant UUTSL coverage differences.
  - Discussion to come to a consensus on UUTSL coverage in each birth location, taking into account various estimates and their plausibility based on data on stock-outs and other known constraints.

- A review of the calculation, to ensure consensus on the final result.
- A discussion of any additional information needed to adjust or check the result, and an outline of a recommended action plan to increase national coverage of UUTSL.

The group of experts were provided with the methodology and shown the use of the algorithm using a fictitious example. (Annexure 2)

## REVIEW OF POLICY AND DATA

Jhpiego ICO staff identified, gathered, and reviewed the following key documents:

- Jharkhand State Program Implementation Plan, 2012-2013
- Analysis of data from HMIS
- Annual Health Survey, 2010-2011
- District Level Household and Facility Survey-3, 2007-2008
- National Family Health Survey, 2005-2006
- Coverage Evaluation Survey, 2009
- National List of Essential Medicines, 2011
- Various policies of the Maternal Health Division, Ministry of Health and Family Welfare, Government of India mentioning importance of uterotonics in AMTSL

### Policy Review

A quick policy review revealed that:

- Oxytocin is the recommended uterotonic for prevention of PPH, and is part of the AMTSL protocol at public as well as private facilities.
- Misoprostol is recommended for use at health sub-centres and home deliveries attended by SBAs where the ideal storage of oxytocin is not possible.
- Oxytocin, ergometrine, and misoprostol are on the National List of Essential Medicines.
- All levels of health personnel (specialists, medical officers, nurses, and trained auxiliary midwives) are authorized to use oxytocin/misoprostol.
- There are no data available regarding UUTSL in Jharkhand or for the frequency of stock-outs of uterotonics at the facility level.
- Currently there is no program for provision of a uterotonic for community births that are not attended by skilled personnel.

The references for the policy review are found in Annexure 3.

### Distribution of Births by Place in Jharkhand

We compared various data sources to understand the distribution of deliveries by place of birth in Jharkhand.

**Table 2: Distribution of births by place of delivery, Jharkhand\***

Place of Delivery	HMIS April 2011-March 2012	DLHS-3 2007-2008	CES 2009	AHS 2010-2011
Home deliveries (SBA and non-SBA)	23.4%	81.8%	59.9%	62.0%
Home deliveries assisted by SBA	21%	7.2%	7%	24.7%
Institutional deliveries	38.0%	17.8%	40.1%	37.6%
Unreported deliveries	61.4%			

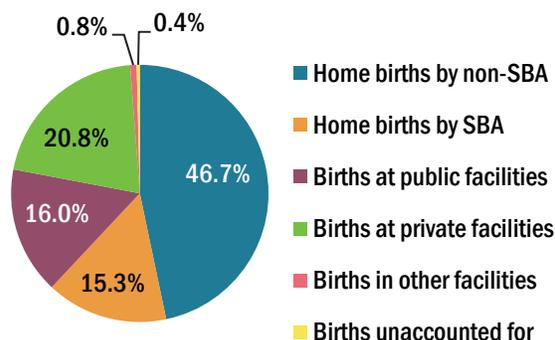
HMIS—Health Management Information System; DLHS—District Level Health Survey; CES—Coverage Evaluation Survey (conducted by UNICEF); AHS—Annual Health Survey

\*All figures as a proportion of total number estimated deliveries

Unfortunately, the HMIS excludes more than 60% of births and hence cannot be considered an accurate estimate. The Annual Health Survey, conducted annually since 2010-2011, is used regularly in Jharkhand and across India as the most accurate current data source for program monitoring. The most recent available data come from the first AHS conducted in 2010-2011.

**Table 3: Distribution of births by place of delivery, Jharkhand, AHS 2010-2011**

Place of Delivery	Proportion of Births by Location (%)	
Home births	62.0	
▪ Home births by non-SBA		46.7
▪ Home births by SBA		15.3
Facility-based births	37.6	
▪ Births at public facilities		16.0
▪ Births at private facilities		20.8
▪ Births in other facilities		0.8
Births unaccounted for	0.4	0.4
<b>Total Births</b>	<b>100.0</b>	<b>100.0</b>

**Figure 1: Proportion of births by place of delivery**

## Government Health Centres that Cater to Deliveries

**Table 4: Types and numbers of public sector facilities providing delivery services**

Type of Facility	No. of Facilities (As of Dec. 2011)	No. of Facilities Conducting Deliveries	No. of Facilities Conducting Lower Segment Caesarean Sections
District hospital	22	19	10
Community health centre	181	165	6
Primary health centre	296	124	0
Health sub-centre	3,374	936	0
<b>Total</b>	<b>3,873</b>	<b>1,244</b>	<b>16</b>

Source: Jharkhand State Program Implementation Plan, 2012-2013

## Data for the Use of Uterotonic in the Third Stage of Labour

All deliveries should get a uterotonic in the third stage of labour as part of efforts to prevent PPH. Ideally we would have liked to collect data on the percentage of all deliveries receiving a uterotonic in the third stage of labour, but these data are not available in the HMIS. Instead,

the HMIS collects data only on the use of oxytocin in the management of complications in labour.

**Table 5: Uterotonic use among total reported deliveries, HMIS**

	HMIS		
	April 2009- March 2010	April 2010- March 2011	April 2011- March 2012
Number of complicated deliveries treated with IV oxytocin (% against reported deliveries)	4,991 (0.9%)	15,121 (2.8%)	15,815 (3.2%)

Source: Jharkhand State HMIS Reports

Note: The percentages shown in Table 5 have been calculated as complicated deliveries treated with IV oxytocin/total deliveries reported.

## STEP ONE: PRE-WORKSHOP QUESTIONNAIRE FROM THE GROUP OF EXPERTS

The full results of the pre-workshop questionnaire are shown in Annexure 4, assembled from the 24 responses received. The following is a summary of the key findings from the questionnaire and document review:

- Oxytocin, ergometrine, and misoprostol are on the National List of Essential Medicines.
- Oxytocin is a basic requirement for reproductive and child health (RCH) services at public as well as private facilities.
- Norms call for use of AMTSL, with oxytocin as the preferred drug.
- All levels of doctors and nurse are authorized to use oxytocin.
- No data are available regarding UUTSL.
- Currently there are some home births attended by qualified personnel, but no program for prevention of PPH using misoprostol at home births.
- No information on the status of stock-outs at the facility level is available.

After a review of the key findings for which there was consensus, the following questions were discussed during the meeting, as there were divergent answers or lack of information in the questionnaire responses:

*Question No. 3: Are there stock-outs of oxytocin / misoprostol / other uterotonics in public health facilities? If yes, how often in each (estimate the average number of days in a month)?*

There was a range of answers from survey respondents regarding this question. Through the workshop discussion the experts reached consensus on reasonable estimates for frequency of stock-outs at facilities at different levels of the public health system.

*Question No. 5: Are there cadres of health workers who attend births but who are not sanctioned to give a uterotonic for prevention of PPH?*

Even though non-medical personnel are known to attend a small but significant fraction of births, they are also using uterotonics at least some of the time.

*Question No. 7: Is there any source of information for the coverage with uterotonic in [private hospitals]? If no, can you give your opinion about what the coverage is (high, medium, or low)?*

Initially, most of the experts were of the consensus that private facilities must have high coverage. But when they discussed that high coverage at private facilities was contrary to the findings of the pre-workshop questionnaire, the panel then changed the consensus to medium coverage.

## STEP TWO: EXISTING DATA ON PLACE OF BIRTH AND AVAILABILITY OF UTEROTONICS

The group of experts accepted that the following data were the most relevant and should be used in the estimation exercise:

- Whether the birth happened in the community or at a facility.
- If in the community, was it attended by a SBA?
- If at a facility, was it in a private or public facility?
- If at a public facility, was it at a health centre or hospital?

Most of the data came from the Annual Health Survey and the National Family Health Survey; the group believed that the data had changed much in recent years. The data on breakdown of deliveries at various levels of health service in the public sector were provided by the state data manager after analysing the HMIS. The data on stock-outs for uterotonics were compiled after a discussion and consensus-building exercise with the experts, based on their field experience.

**Table 6: Distribution of place of birth, birth attendant, and uterotonic availability in Jharkhand**

Information on Deliveries by Setting	Proportion of Deliveries	Data Source
<b>Location of delivery</b> Institutional delivery Home/Non-institutional delivery	37.6% 62.0%	AHS 2010-2011
<b>Breakdown by sector</b> Public Private	16.0% 20.8%	AHS 2010-2011
<b>Breakdown by facility type in public sector</b> Level III - District hospital/FRU Level II - Community health centre (CHC)/Primary health centre (PHC) Level I - Health sub-centre (HSC)	(Of public sector births) 18% 68% 14%	HMIS Apr.-Oct. 2012
<b>Breakdown by health worker cadre in public sector</b> Medical Officers ANM/Nurse/Lady Health Visitor (LHV)/Midwife Other health personnel Dai/Traditional Birth Attendant (TBA) Relative No one Missing data	(Of public sector births) 19.2% 7.2% 4% 64.4% 6.5% 8% 0.5%	NFHS-3, 2005-2006
<b>Breakdown by attendant for home births</b> SBA Non-SBA/family	15.3% 46.7%	AHS 2010-2011
<b>Estimated stock-out rate for uterotonic by setting</b> Level I - HSC Level II - CHC/PHC Level III - District hospital/FRU Medical college Private institution	10 days per month (33%) 5 days per month (17%) 2 days per month (7%) 0 days per month (0%) 0 days per month (0%)	Consensus from experts

## STEP THREE: ESTIMATION OF THE USE OF UTEROTONIC IN THE THIRD STAGE OF LABOUR ACROSS VARIOUS SETTINGS

The last phase of the meeting involved a detailed discussion of the estimation of the UUTSL coverage level in each of the identified settings in Jharkhand. The facilitators displayed the calculations and presented the findings for review and discussion. The consensus was that there were high usage rates at both public and private facilities, as well as at community deliveries attended by a SBA. Community deliveries that are attended by non-skilled birth attendants were provided with a zero rate because there is no official program for the same. Upper and lower bounds for the estimates were also established to get a sense of the distribution.

**Table 7: Place of birth, birth attendant, and provision of uterotonic in Jharkhand**

Information on Deliveries by Setting	Proportion of Deliveries	Proportion Given Uterotonic (by expert consensus)
<b>Location of delivery</b>		
Institutional delivery	37.6%	
Home/Non-institutional delivery	62.0%	
<b>Breakdown by sector</b>		
Public	16.0%	90% (range 80-90%)
Private	20.8%	90% (range 70-100%)
<b>Breakdown by facility type in public sector</b>	(Of public sector births)	
Level III - District hospital/FRU	18%	90%
Level II - CHC/PHC	68%	90%
Level I - HSC	14%	90%
<b>Births in public sector facilities conducted by unskilled staff</b>	1%	0%
<b>Breakdown by health worker cadre in public sector</b>	(Of public sector births)	
Medical Officer	19.2%	Not estimated since these data on distribution were considered unreliable
ANM/Nurse/LHV/Midwife	7.2%	
Other health personnel	4%	
Dai/TBA	64.4%	
Relative	6.5%	
No one	8%	
Missing data	0.5%	
<b>Breakdown by attendant for home births</b>		
SBA	15.3%	85% (range 80-90%)
Non-SBA/family	46.7%	0%
<b>Estimated stock-out rate for uterotonic by setting</b>		
Level I - HSC	33%	
Level II - CHC/PHC	17%	
Level III - District hospital/FRU	7%	
Medical college	0%	
Private Institution	0%	

Two important determinants were then factored into the calculation:

- 1) The estimate for the number of days stock was present.
- 2) The estimate for the percentage of oxytocin vials that are potent.

There is great concern in India about the quality of uterotonic drugs. A recent study by PATH<sup>3</sup> looked at the storage conditions and the potency of available oxytocin. The study revealed that between 22% and 50% of samples of oxytocin vials that were selected were out of quality specification, meaning that they were unlikely to result in the same therapeutic effect as potent,

<sup>3</sup> Personal communication with Nitya Nand Deepak, PATH/India.

high-quality oxytocin. The expert panel reviewed this information and considered it important in estimating the actual achievement of the goal of prevention of PPH. They made an assumption that 40% of oxytocin samples would be out of specification. This resulted in the **Effective Rate of Quality Uterotonic Use**. Because this consideration was not a part of the original methodology, two final calculations were established.

The following table calculates the **Proportion of Uterotonic Use** in different locations of birth, using the data from Tables 6 and 7 above. It further calculates the **Effective Rate of Uterotonic Use**, given the prevalence of stock-outs of uterotonic drugs. Finally, it calculates the **Effective Rate of Quality Uterotonic Use**, based on the expert panel's assumption that 40% of oxytocin samples in Jharkhand are out of specification.

**Table 8: Factoring in stock-out rates and drug quality rates to uterotonic use rates at various settings in Jharkhand**

Birth Location	% Distribution		Uterotonic Use Rate		Proportion of UUTSL
Hospital	0.18	X	0.90	=	0.162
CHC/PHC	0.68	X	0.90	=	0.612
HSC	0.14	X	0.90	=	0.126
	Above numbers are distribution of public sector births by location.				
Home (by SBA)	0.153	X	0.85	=	0.130
Private facility	0.208	X	0.90	=	0.187
	Proportion of UUTSL		Inverse of Stock-Out Rate		Effective Rate of UUTSL
Hospital	0.162	X	0.93	=	0.150
CHC/PHC	0.612	X	0.83	=	0.507
HSC	0.126	X	0.67	=	0.084
Public sector (Total)	Above numbers are distribution of public sector births by location.				
Home (by SBA)	0.130	X	1.00	=	0.130
Private facility	0.187	X	1.00	=	0.187
	Effective Rate of UUTSL		Drug Quality Rate		Effective Rate of Quality UUTSL
Hospital	0.150	X	0.60	=	0.090
CHC/PHC	0.507	X	0.60	=	0.304
HSC	0.084	X	1.00	=	0.084
Public sector (Total)	Above numbers are distribution of public sector births by location.				
Home (by SBA)	0.130	X	1.00	=	0.130
Private facility	0.187	X	0.60	=	0.112

The **final calculations** of the estimates apply the effective rate of UUTSL to the percentage of births in that area. Table 8 describes the effective rate of UUTSL, while Table 9 describes the same rate after adjusting for potency of the drug (oxytocin).

**Table 9: Coverage estimate for use of uterotonic in third stage of labour for prevention of postpartum haemorrhage**

	% Births	% Effective Provision of UUTSL	Contribution to State Coverage
Home births - Attended by SBA	15.3%	85%	13.0%
Home births - NOT attended by SBA	46.7%	0%	0%
Private facilities	20.8%	90%	18.7%
Public facilities - Attended by SBA	15.8%	75%	11.8%
Public facilities - NOT attended by SBA	0.2%	0%	0%
COVERAGE ESTIMATE: Effective rate of UUTSL			43.5%

**Table 10: Coverage estimate for use of uterotonic in third stage of labour for prevention of postpartum haemorrhage (after correction for quality of drug)**

	% Births	% Effective Provision of Quality UUTSL	Contribution to State Coverage
Home births - Attended by SBA	15.3%	85%	13.0%
Home births - NOT attended by SBA	46.7%	0%	0%
Private facilities	20.8%	54%	11.2%
Public facilities - Attended by SBA	15.8%	48%	7.6%
Public facilities - NOT attended by SBA	0.2%	0%	0%
COVERAGE ESTIMATE: Effective rate of quality UUTSL			31.8%

## LIMITATIONS

The principal limitation of this estimation exercise is one that has vexed the maternal health field for some time: that there is no regular and reliable source of data that estimates the rate at which women receive a uterotonic immediately following birth. High-quality, reliable data were available for the distribution of place of births, and moderate-quality evidence on uterotonic quality from a neighbouring state was available. There were no reliable data, however, on the provision of uterotonics in public sector, private sector, or attended home births. Usage rates in these settings were estimated by the participants to be quite high, but it would be worthwhile to look more closely at the actual practice. Furthermore, there was no good source of data regarding stock-outs of uterotonics.

This estimation exercise was also limited by the growing prevalence among providers to give multiple uterotonics at the same time. This practice is in part due to programmatic confusion, which has alternately promoted both oxytocin and misoprostol, as well as to providers' concerns regarding the quality of uterotonic drugs. The routine use of oxytocin together with misoprostol or ergometrine has not been demonstrated to be superior to use of oxytocin alone. This practice may not have been reflected in these estimates and should be further studied; it is not an efficient use of patient or health system resources.

This exercise also did not look at the issue of uterotonic use before delivery, especially the practice of uncontrolled augmentation of labour using oxytocin. This is a concerning practice that requires more effort to eradicate.

A participant evaluation was carried out at the end of the exercise (Annexure 5). The agenda and schedule for the estimation exercise are shown in Annexure 6.

## ACTIONS AND RECOMMENDATIONS

At the conclusion of the workshop, certain themes emerged as requiring immediate programmatic attention from the government and its development partners:

- Promote awareness among women and families about the potential and correct use of misoprostol for prevention of PPH.
- Develop a program for the advanced distribution of misoprostol to women who deliver at home.
- Improve commodity management to reduce the rate of stock-outs of uterotonic drugs.
- Further understand and improve the quality of oxytocin.
- Improve data gathering and data quality for UUTSL.

## CONCLUSIONS

The estimation of uterotonic use is only worthwhile if it leads to programmatic action and efforts to improve the coverage of this fundamental maternal health intervention. The final estimate of only 43.5% of births in Jharkhand being protected from PPH through the use of a uterotonic is alarming. It is further concerning when the issue of uterotonic quality is considered, resulting in a true rate of protection from PPH of approximately 31.8%. While these are estimates, they provide a starting point for the government and partners to intervene.

Interventions are available now. There is no lack of knowledge about the correct programmatic approach for the prevention of maternal mortality from postpartum haemorrhage. What is left now is for us to act upon that knowledge.

# Annexure 1

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## LIST OF PARTICIPANTS AT THE EXPERT MEETING FOR ESTIMATION OF USE OF UTEROTONIC IN THE THIRD STAGE OF LABOUR

From Department of Health, Government of Jharkhand

- Dr Praveen Chandra, Director in Chief, Health Services
- Dr AK Chaudhary, Director Health Services
- Dr Tunul Hembrom, Deputy Director, Health Services
- Dr Jaya Prasad, Deputy Director, Health Services
- Ms Akai Minz, SPM and State Coordinator VSRC
- Mr Subodh Kumar, State data manager, NRHM

Representing Government Health Services

- Dr Anjulan Aind, Sadar Hospital Khunti
- Dr Madhulika Jonathan, Health Specialist, UNICEF
- Mr Sharat Pandey, State Maternal & Newborn Health Consultant, UNICEF
- Ms Rozenah Phazanah, Nurse Mentor Ranchi
- Dr Sabita Shukla, Assistant Professor Gynae & Obstetrics, PMCH Dhanbad
- Dr Dhananjay Kumar, MNH Manager, Save the Children
- Mr Rakesh Kumar, Program Officer, IntraHealth
- Dr Munir Ahmed, JRHMS

Representing Private Service Providers

- Dr Eileen, Ursiline Hospital, Lohardaga
- Dr Vijila Isaac, Mission Hospital, Sahebgunj
- Dr Kiran Trivedi, Assistant Professor , Gynae & Obstetrics, RIMS, Ranchi (FOGSI Representative)

Representing Home Deliveries

- Ms Jacinta Aind, Sahiyya State Trainer
- Mr Ranjan Kumar, Jan Chetna Manch (Works with TBA)
- Ms Kajla Devi, Jan Chetna Manch
- Ms Chhoti Kumari, Jan Chetna Manch
- Mr Manower Alam, Sahiyya State Trainer
- Mr Debashish Sinha, Director Health, NEEDS

Representing USAID

- Dr Sharmila Neogi, USAID

Representing MCHIP

- Dr Jaya Swaroop Mohanty, Maternal & Child Health Consultant, MCHIP
- Dr Jeffrey Smith, MCHIP
- Dr Gajendra Singh, MCHIP
- Dr Dinesh Singh, MCHIP
- Ms Deboporna Ghosh, MCHIP
- Dr Suranjeen Prasad, MCHIP

## Annexure 2

### ILLUSTRATIVE EXAMPLE OF CALCULATION OF USE OF UTEROTONIC IN THE THIRD STAGE OF LABOUR USING ALGORITHM

NOTE: The data used in this example are fictitious.

#### Phase 1: Review of Key Policies, Norms, Personnel Data

#### Phase 2: Estimation of Proportion of Births in Different Locations

##### Institutional vs. Home Delivery

Births are first split between home birth and institutional delivery. A recent Demographic and Health Survey (DHS) found that 30% of births were at home and 70% were institutional.

##### Institutional—Public vs. Private

The last DHS also showed that 20% of all births take place in private facilities. The rest (50%) occur in public facilities.

##### Public—By Facility Type

Of the 50% of deliveries that take place in public facilities, the expert panel agrees that there is variation by levels of public facility, as follows:

- District and provincial hospitals cover 50% of the public sector institutional births. That is, they cover  $50\% \times 50\% = 25\%$  of all births in the country.
- Health centres also cover about 50% of all public sector institutional births.

##### Private—By Type of Provider

Of the 20% of births in private facilities, about half (10%) are with individual private providers and the other half (10%) are in faith-based (mission) hospitals.

Proportion of births by location



### Phase 3: Estimation of Uterotonic Coverage in Each Location

	(% Births) x	(% Uterotonic Use) =	Contribution to National Coverage
<p><b>HOME UTEROTONIC COVERAGE</b></p> <p>There are no skilled attendants who deliver at home, so injectable uterotonic use is near zero. On the other hand, there is an ongoing misoprostol pilot program in one of five provinces in the country. This province has about 10% of the country's population (and 30% are estimated to have home births). Documents obtained from this program showed that managers estimated that they are covering about 50% of home births in the province. That implies that <math>10\% \times 30\% \times 50\% = 1.5\%</math> of all births in the country are covered with misoprostol by this program.</p>	10% * 30%	50%	1.5%
<p><b>PUBLIC HOSPITAL UTEROTONIC COVERAGE</b></p> <p>Uterotonic use is recorded in separate hospital registers. The last Ministry of Health quarterly report showed a rate of use of 85%. However, a recent independent assessment of uterotonic use by direct observation showed a rate of 70% in the same settings. The expert panel decided to use the estimate derived from the independent assessment—70%.</p>	25%	70%	17.5%
<p><b>PUBLIC HEALTH CENTRE UTEROTONIC COVERAGE</b></p> <p>There is no information from registers on uterotonic use in health centres and there has been no independent evaluation of facilities at this level. The expert panel is aware that personnel at this level are authorized and trained to use oxytocin, however there are problems with stock-outs. Their best estimate is that uterotonic use is about half as common here as in hospitals. That is, the coverage is about 35%.</p>	25%	35%	8.8%
<p><b>PRIVATE INDIVIDUAL PROVIDER UTEROTONIC COVERAGE</b></p> <p>There is no independent evaluation of private providers. The expert panel believes that private providers do not use uterotonics consistently, especially older providers, whereas more recently trained providers are more likely to use oxytocin. They estimate that uterotonics are used about half the time in deliveries in this setting.</p>	10%	50%	5.0%
<p><b>PRIVATE MISSION HOSPITAL UTEROTONIC COVERAGE</b></p> <p>The Christian Hospital Association has done a recent evaluation and found that uterotonic use is 95% in this setting.</p>	10%	95%	9.5%
<b>NATIONAL UTEROTONIC COVERAGE ESTIMATE</b>			42.3%

## Annexure 3

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### GOVERNMENT OF INDIA POLICIES RELATED TO USE OF UTEROTONIC IN THE THIRD STAGE OF LABOUR

#### Excerpts from Key Policy Documents and Guidelines Related to Prevention of PPH

##### 1. Uterotonics recommended in third stage of labour as part of AMTSL

Source: Page 49. Guidelines for Antenatal Care and Skilled Attendance at Birth by ANMs/LHVs/SNs (staff nurses)

- AMTSL is recommended for all deliveries.
- Inj. oxytocin is the drug of choice for all health facilities (including sub-centres).
- Tab. misoprostol is to be used when adequate refrigeration of inj. oxytocin is not possible.
- Tab. misoprostol can also be used for home deliveries.
- Inj. oxytocin – dose, storage, route of administration, mentioned.
- Tab. misoprostol – dose and advice for side effects mentioned.

##### 2. Mandating use of uterotonics in private facilities

Search did not reveal any guidelines mandating UUTSL as part of active management for private facilities.

But a document referring to accreditation of hospitals for provision of RCH services by the government mentions the requirements of availability of uterotonics.

Source: Guidelines for Accreditation of Private Health Facilities for providing RCH services Maternal Health Division, Department of Family Welfare, Ministry of Health and Family Welfare, Government of India, April 2010

- PHFs who have requested for accreditation of comprehensive RCH services will be assessed as per the assessment tools provided in II, III and IV. (Page 30)
- Annexure III a is: “Requirements of drugs for comprehensive RCH services” and it includes uterotonics – injection oxytocin and injection methyl ergometrine maleate. (Page 45)

##### 3. Mandating use of uterotonics in home delivery

Search did not reveal any guidelines mandating UUTSL as part of prevention of PPH for home deliveries.

However, a new policy directive has been issued from the Government of India authorising the distribution of misoprostol by ASHAs to women for self-administration at home. This new policy directive is yet to be operationalized at the state level.

##### 4. Assuring implementation of uterotonic in third stage of labour

Search did not reveal any guidelines mandating collection of data on UUTSL as a standard for family-friendly hospital or in any supportive supervision checklist.

## Mention of Use of Oxytocin/Uterotonics in Various Guidelines

1. Guidelines for Operationalizing a Primary Health Centre for Providing 24-Hour Delivery and Newborn Care Under RCH-II

Maternal Health Division, Department of Family Welfare, Ministry of Health and Family Welfare, Government of India, 2005

- Page 30, Annexure 3 as “Requirements for a fully equipped and operational labour room”

2. Guidelines for Antenatal Care and Skilled Attendance at Birth by ANMs & LHVs

Maternal Health Division, Department of Family Welfare, Ministry of Health and Family Welfare, Government of India, 2005

- Oxytocic drugs, such as injection oxytocin should not be given before the delivery. The use of oxytocic drugs is associated with an increased incidence of rupture of the uterus and subsequent Severe APH. (Page 30)
- Injecting oxytocin can help reduce bleeding in cases of atonic postpartum haemorrhage. (Page 49)
- Give the woman inj. oxytocin 10 U IM stat for management of PPH before referring to FRU. (Page 52)
- Giving a uterotonic drug (one that enhances contraction of the uterine muscles) has been shown to be effective in preventing PPH. (Page 35)

3. Facilitator’s Guide for Conducting Training for ANMs, LHVs & Staff Nurses as a Skilled Birth Attendant

Maternal Health Division, Department of Family Welfare, Ministry of Health and Family Welfare, Government of India, 2006

- Page 5, Table 1 shows oxytocin and misoprostol in Additional Drugs and Interventions Approved for the SBA for prevention and management of PPH.

4. Guidelines for Pregnancy Care and Management of Common Obstetric Complications by Medical Officers

Maternal Health Division, Department of Family Welfare, Ministry of Health and Family Welfare, Government of India, 2005

- Oxytocic drugs such as injection oxytocin should not be given before the delivery. The use of oxytocic drugs is associated with an increased incidence of rupture of the uterus and subsequent Severe APH. (Page 38)
- Inj. oxytocin (in a dose of 10 U IM) is the drug of choice for preventing PPH. (Page 44)
- Give a bolus dose of inj. oxytocin 10 U IM for management of atonic PPH with placenta delivered. (Page 82)
- Table 11 shows the use of different uterotonic drugs for management of PPH. (Page 84)

5. National List of Essential Medicines, 2011

Oxytocin and misoprostol are listed on Page 74.

## 6. Operational Guidelines on Maternal & Newborn Health

Department of Family Welfare, Ministry of Health and Family Welfare, Government of India

- Annexure 1 A is for Skilled Birth Attendance at Sub-Centre: Equipment, Supplies and Drugs, and it shows uterotonic drugs in Kit B. (Page 43)
- Annexure 1 B is for Home Delivery with Skilled Birth Attendant, and it shows oxytocin in Pocket 2 of Home Delivery Kit. (Page 44)
- Annexure 1 C is for Drugs and Equipment for Institutional Delivery at the 24x7 PHC: The Basic Emergency Obstetric Care Level, and it shows oxytocin in Emergency Obstetric Care Drug Kit. (Page 45)

## 7. Guidelines for Antenatal Care and Skilled Attendance at Birth by ANMs/LHVs/SNs

Maternal Health Division, Department of Family Welfare, Ministry of Health and Family Welfare, Government of India, April 2010

- The items required during and immediately after delivery at home include presence of an ANM for conducting the delivery and supplies like inj. oxytocin, tab. misoprostol. (Page 28)
- Oxytocin is the drug of choice for AMTSL at the SC/PHC/FRU/health facility. (Page 49)
- Manage PPH by giving intravenous oxytocin (20 IU) in 500 ml of Ringer's Lactate at the rate of 40-60 drops per minute and refer the woman to a higher health facility immediately. (Key messages, Page 73)
- Flowchart for Management of PPH. (Page 76)
- Give an oxytocin injection (10 IU, intramuscular) stat for management of bleeding 24 hours after delivery (delayed/secondary PPH). (Page 78)
- SBA should be proficient in administration of uterotonics (injection oxytocin/tablet misoprostol) for AMTSL. (Annexure IX: Procedures and Drugs Permitted for Use by Skilled Birth Attendants, Page 123)

## Annexure 4

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### PRE-WORKSHOP QUESTIONNAIRE ON PLACE OF BIRTH, NATIONAL POLICIES, AND AVAILABILITY OF UTEROTONICS

**Q.1 What uterotonic(s) are included in the state guideline for prevention of postpartum haemorrhage?**

Oxytocin only – 83%  
Misoprostol only – 79%  
Ergometrine only – 13%  
Oxytocin/Misoprostol/Ergometrine – 13%  
Oxytocin + Ergometrine – 4%

**Remarks:** Two candidates mentioned that misoprostol is used for home deliveries and oxytocin is used at institutional level.

**Q.2 Please specify what level of public health facilities are authorized to give uterotonic for prevention of postpartum haemorrhage.**

All facilities – 54%  
Tertiary hospitals only (medical colleges) – 4%  
District and FRU hospital – 42%  
CHC/PHC – 42%  
Health sub-centres – 46%

**Q.3 Are there stock-outs of oxytocin/misoprostol/other uterotonics in public health facilities? If yes, how often in each (estimate the average number of days in a month).**

YES – 79%  
NO – 13%  
No ANS – 8%

#### **General Answers**

<7 days/month = 3 persons  
10-20 days/month = 5 persons  
1-2 months in a year = 2 persons  
2 months in a year = 3 persons

#### **Specific Answers**

Medical college – 30 days  
DH – 1-8 days per month  
CHC – 2-3 days per month  
HSC – 2-7 days per month

**Answered YES but not mentioned time – 2 persons**

**Q.4 Please specify the health worker cadres that are authorized to provide uterotonic for prevention of postpartum haemorrhage?**

EmOC Trained Doctor – 92%

Medical Officer – 92%

Nurse – 88%

ANM – 96%

ASHA/Sahiyya – 13%

TBA/Dai – 8%

**Q.5 Are there cadres of workers who attend births but who are not sanctioned to give uterotonic for prevention of postpartum haemorrhage?**

YES – 29%

NO – 71%

Candidates who answered YES mentioned about:

- Dai at home delivery
- Tab. misoprostol is given by Sahiyyas but not inj. oxytocin
- ANM and nurse cannot give ergometrine

Tab. misoprostol is given by ASHA but not inj. oxytocin

**Q.6 Approximately what proportion of institution births occur outside the public system—in private hospitals, mission hospitals, etc.? Mention the source of your information.**

Source **not** given: 12 people answered in range of 4% to 55%

Source given: 11 people answered in range of 7% to 39% with AHS 2010-2011 as source for this data

**Q.7 Is there any source of information for the coverage with uterotonic in these non-public system(s)? (private hospitals) If yes, state the source and the level of coverage found. If no, can you give your opinion about what the coverage is (at least state if it is high, medium, or low)?**

21/24 people answered that no such information is available:

- 1 person answered that this can be collected through CME and conferences
- 1 person answered that this information is available for his own hospital
- 1 person did not answer the question

14 people estimated for the above question

- High coverage was estimated by 4 persons
- Medium coverage was estimated by 5 persons
- Low coverage was estimated by 5 persons

**Q.8 Are home births authorized to have uterotonic provision for prevention of postpartum haemorrhage?**

21/24 people answered “Yes, if delivered by a skilled birth attendant”

- 7 of them mentioned tab. misoprostol 600mcg
- 1 person mentioned “if delivered by a ASHA or TBA”
- 1 person mentioned “administration by self or relative”
- 1 person did not answer the question
- 1 person mentioned that they will encourage the woman herself or family member to use it

**Q.9 Is there a program for use of uterotonics at home birth for prevention of postpartum haemorrhage?**

YES – 17%

NO – 83%

**Q.10 Please specify the health worker cadres that are authorized to provide uterotonic for home births for prevention of postpartum haemorrhage.**

Doctor – 88%

Nurse Grade A – 100%

SBA Trained ANM – 96%

ASHA/Sahiyya – 8%

Other – 4%

**Q.11 Is there an estimation for use of uterotonics by health workers in home delivery? If yes, please state the estimated rate and the source of that information.**

YES – 33%

NO – 67%

*Remarks: Those who answered YES mentioned the route and dose of uterotonic.*

# Annexure 5

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## **PARTICIPANTS' EVALUATION AND FEEDBACK OF THE ESTIMATION EXERCISE**

A total of 20 participants responded to a questionnaire for evaluation and feedback. Six questions were asked and participants were asked to rate some of them with a score of 1-5.

### **Question 1:**

**I found the estimation exercise useful. This would help in improving health services and reducing maternal death.**

Average score: **4.13** (out of 5)

Remarks: Some participants were concerned that this exercise was just an estimate and they would have liked to have objective data on the same. But at the same time, most said that these estimates would help in public health planning. They also commented on the process and how a variety of opinions were considered and consensus built.

### **Question 2:**

**I believe that the methodology for the estimation of the use of uterotonics is well-accepted and scientific.**

Average score: **4.05** (out of 5)

Remarks: One person mentioned that there were other methods to do the same estimation and they may be compared with this method. One of the participants was concerned about these estimates coming from personal experiences, while another was not comfortable with the estimates of quality of oxytocin being taken from just one study conducted.

### **Question 3:**

**Rate the pre-meeting questionnaire sent out with the invitation.**

Average score: **3.58** (out of 5)

Remarks: One of the participants wished that the questionnaire came in at least ten days before the exercise. Most remarked that the questions were not immediately understood.

### **Question 4:**

**Rate the facilitation for the estimation exercise.**

Average score: **4.49** (out of 5)

Remarks: Most were content with the level of discussion that was generated.

### Question 5:

**If you were asked to facilitate the exercise, how would you have done it differently?**

Remarks: Most felt it was well-facilitated and some provided a few suggestions.

- Send the questionnaire at least ten days before
- Get more informed data on use:
  - Separately for oxytocin and misoprostol
  - Considered regional variation especially in the case of Jharkhand when presenting
  - Factored the time of the year
  - Conducted a survey by interviewing various birth attendants on UUTSL
  - Created case studies from CHC/PHC before the exercise
  - Found some accurate data at least for one district
- Expanded the group of experts to include:
  - At least a few nurses and doctors actually working in HSC, CHC as they are familiar with ground reality
  - More community voice
  - More remote areas representatives should be called
  - Should involve SBA and their master trainers
- I would have facilitated it through:
  - Increased use of VIPP cards for consensus
  - Had a translator for those not familiar with the dominant language

### Question 6:

**In your opinion should this be done on a regular basis?**

Remarks: All the respondents agreed that this estimation exercise should be done regularly.

There was no consensus on the frequency; the suggestions ranged from every three months to once a year. Some participants remarked about the need for programmatic action and change before conducting the next estimation exercise.

# Annexure 6

## AGENDA AND SCHEDULE FOR ESTIMATION EXERCISE

### ESTIMATING UTEROTONIC USE IN THIRD STAGE OF LABOUR

6<sup>th</sup> June 2013  
Hotel Capitol Hill, Ranchi

#### Agenda

Time	Content	Person
10:00	Registration	
10:30-11:00	Opening of meeting: Greetings and introductions  Review and discussion of objective and methodology of meeting	Dr Praveen Chandra, Director-in-Chief Dr A K Choudhary, Director (Maternal Health) Dr Jeffrey Smith, MCHIP
11:00-11:30	<b>Session One</b> <ul style="list-style-type: none"> <li>• Presentation of information from document review and answers to Worksheet 1* by expert panellists</li> <li>• Discussion and finalization of information in Worksheet 1* on delivery settings, past UUTSL coverage estimates by setting, national policies, and guidelines</li> </ul>	Facilitator Dr Gajendra Singh Dr Jeffrey Smith
11:30-11:45	<b>Coffee Break</b>	
11:45-1:00	<b>Session Two</b> <ul style="list-style-type: none"> <li>• Group discussion on estimates of uterotonic use in third stage of labour (Fill out Worksheet 2** on data elements for coverage estimate)</li> <li>• Discuss additional information needed for estimation algorithm</li> <li>• Review of points of disagreement on data in Worksheet 2**</li> <li>• Discuss other factors that affect effective coverage (i.e., stock-outs)</li> <li>• Discuss certainty of estimates and possible range of estimates</li> </ul>	Facilitator Dr Vikas Yadav
1:00-1:45	<b>Session Three</b> <ul style="list-style-type: none"> <li>• Presentation of state coverage estimate using Worksheet 3</li> <li>• Discussion and adjustments of state coverage estimate</li> <li>• Steps to address gaps in uterotonic use</li> </ul>	Facilitator Dr Suranjeen Prasad
1:45-2:00	Evaluation of meeting  Vote of thanks and closing remarks	Dr Dinesh Singh Dr AK Choudhary, Director Jharkhand Health Services
2:00	<b>Lunch</b>	

\*Worksheet 1 refers to the pre-workshop questionnaire.

\*\*Worksheet 2 is presented in this report as Table 7.

