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IPE Global

A Report

By

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International Institute of Health Management Research

New Delhi

CERTIFICATE OF COMPLETION

The certificate is awarded to

Deepali Bhardwaj

In recognition of having successfully completed her

Internship in the department of

Maternal And Child Health

and has successfully completed her Project on

SITUATION ANALYSIS OF A.M.T.S.L. FOR P.P.H. PREVENTION

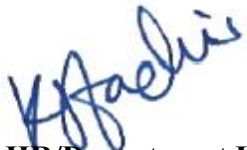
Date: 20 July 2022

IPE Global

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning

We wish her all the best for future endeavors

Organization Supervisor



Head-HR/Department Head

Certificate of Approval

The following Summer Internship Project of titled **"SITUATION ANALYSIS OF A.M.T.S.L. FOR P.P.H. PREVENTION"** at **IPE Global** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the report only for the purpose it is submitted.

Mentor's Signature

IIHMR, Delhi

FEEDBACK FORM

(Organization Supervisor)

Name of the Student: Ms Deepali Bharadwaj

Summer Internship Institution: IPE Global Ltd.

Area of Summer Internship: MNCH Services (Assessment of AMTSL in public health facilities at District Dewas MP

Attendance: From 4th to 10th May 2022

Objectives met: Yes

Deliverables: Data collection and compilation

Strengths: Resilience and willingness to learn

Suggestions for Improvement: Technical aspects of healthcare

Date: 21 July, 2022
Officer-in-Charge (Internship

Signature of the

Place: Bhopal MP

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Suggestions for Improvement: Technical aspects of healthcare

Signature of the Officer-in-Charge (Internship)

Date: 21 July, 2022
Place: Delhi

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TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

World Health Organization (WHO) defines Maternal Mortality Ratio (MMR) as annual number of female deaths from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy. (1)

The major complications that account for nearly 75% of all maternal deaths are severe bleeding (mostly bleeding after childbirth), infections (usually after childbirth), high blood pressure during pregnancy (pre-eclampsia and eclampsia), complications from delivery and unsafe abortion. The remainder are caused by or associated with infections such as malaria or related to chronic conditions like cardiac diseases or diabetes. (1)

Maternal mortality is a big challenge globally - in 2020, the global MMR was 152 deaths per 100,000 live births, up from 151 deaths per 100,000 live births in 2019. This trajectory projects 133 deaths per 100,000 live births in 2030, nearly double the Sustainable Developmental Goal (SDG) target. MMR in South-east Asia was 62 per 100,000 live births. [(1)].

As per SRS Report released in March 2022, with reference year of 2017- 19; India has an MMR of 103 per 100,000 live births. There are wide state differentials with Assam topping the list with the highest MMR. Madhya Pradesh being one of the states with a

high burden (MMR of 163). [2] WHO statistics suggests that 25% of maternal deaths are due to PPH. In India, PPH accounts for 38% of maternal deaths. [3]

As per NHP (National Health Policy) 2017, the target for MMR was to achieve 100 per 1,00,000 live births by 2020. India has committed itself to the latest United Nations (UN) target for the SDGs for MMR at 70 per 1,00,000 live births by the year 2030. [4]

Postpartum hemorrhage (PPH) is commonly defined as blood loss of 500 ml or more within 24 hours after birth, while severe PPH is defined as a blood loss of 1000 ml or more within the same timeframe according to World Health Organization (WHO). Every year about 14 million women around the world suffer from PPH. The incidence of PPH is reported as 2% - 4% after vaginal delivery and 6% after c – section. The most frequent cause of PPH is uterine atony in about 50% cases. [5]

Government of India (GoI) adopted the Reproductive, Maternal, New-born, Child and Adolescent Health (RMNCH+A) framework in 2013. It essentially aims to address the major causes of mortality and morbidity among women and children. GoI has launched multiple programs to address different causes of MMR directly and indirectly like the Janani Suraksha Yojana (JSY), Janani Shishu Suraksha Karyakaram (JSSK), Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA), Intensified National Iron Plus Initiative (INIPI) and Labour room Quality improvement Initiative (LaQshya). For the training of service providers Skill Birth Attendant (SBA) and, DAKSHATA training was introduced by the GoI in the last decade. [6]

There are different strategies for management of PPH but one of the most effective methdos is Active Management of Third Stage of Labour (AMTSL) has been defined in various ways and current international definition comprises three components: administration of uterotonic drug (Injection Oxytocin-10 IU, IM or Tab Misoprostol-600mcg, oral), Controlled cord traction (CCT) and Uterine massage. AMTSL helps in expulsion of placenta and reduction in blood loss to mother. [6] Approximately 66% cases of PPH can be prevented if AMTSL is done in all cases after delivery. The AMTSL guidelines were introduced in 2003, modified in 2006[7]. .

According to WHO prophylactic management by provision of uterotonics provided by the SBA during AMTSL is a lifesaving procedure. Uterotonics have a critical role in obstetrics, notably for prevention and treatment of PPH. Prophylactic use of uterotonics especially oxytocin is the accepted standard of care globally. [3] The issues with usage of Oxytocin are to maintain a proper supply chain. However, due to its susceptibility to degradation from exposure to heat leads to its reduced effectiveness in preventing PPH from uterine atony. In low resource setting where generally electrical appliance (refrigerator) to maintain cold chain is not available and hence the efficacy of Oxytocin is challenged.

This led to the initiation of the research question which was a joint collaborative project of IPE Global and IIHMR Delhi. This study is part of the Systems Approach for MNCH focusing on Vulnerable Geographies (SAMVEG) project. USAID India awarded the SAMVEG project to IPE Global led consortium with project partners DIMAGI Inc., World Health Partners (WHP) and John Snow India (JSI) Private Limited through a

Cooperative Agreement for a period of four years beginning from July 27th, 2021. The project will fill critical gaps in health systems, encourage innovations, scale-up and sustain interventions and help India progress towards 'self-reliance' in MNCH. The overarching goal of SAMVEG is to accelerate efforts to improve maternal, newborn and child health outcomes in identified vulnerable geographies of India. The objective of SAMVEG is to 'accelerate efforts to reduce maternal, neonatal, and infant mortality in 3 states and 25 Aspirational Districts through several catalytic and innovative interventions. The project will work closely with governments in Jharkhand, Madhya Pradesh, and Uttarakhand and focus on 25 Aspirational Districts in Jharkhand (19), Uttarakhand (2), Punjab (2), Haryana (1) and Himachal Pradesh (1). SAMVEG will work on critical MNCH issues across the continuum of care. The project activities will be distributed across the MNCH priority periods of pregnancy, care at birth, post-natal care, newborn care & child health and cross cutting systemic issues.

IIHMR- Delhi is part of the Society for Indian Institute of Health Management Research (IIHMR), which was established in 1984 under the Societies Registration Act 1958. It was setup in 2008 with a focus on national and international health to cater to the growing needs of the country and the Asia-Pacific region. We undertake capacity building of health professionals through different short term management development programs, skill building workshops, and executive training programs. We also conduct locally relevant research to meet the requirements of the national health program and policies.

2. LITERATURE REVIEW

An intervention study published by Tsu Vivien D et al in the year 2006 on reducing PPH in Vietnam in 3607 participants; AMTSL was associated with reduced risks for prolonged third stage beyond 30 min, supplemental oxytocin and bimanual compression and AMTSL was associated with a 34% reduction in PPH. [8]

A study published by Guerra G V et al. in the year 2009 on factors and outcomes associated with the induction of labour in Latin America it was found that out of the total deliveries, 11.4% were induced and induced labour is, however, associated with poorer maternal and perinatal outcomes than spontaneous labour. [9]

A systematic review published by Gizzo S et al in the year 2013 on which uterotonic is better to prevent PPH – it was found that Oxytocin is the first choice for PPH prophylaxis, Ergot alkaloids, syntometrine, and prostaglandins are second- line uterotonic agents, Misoprostol is not effective as oxytocin but it may be used when the latter is not available and Carbetocin should be used instead of continuous oxytocin infusion in elective caesarean sections for PPH prevention and to decrease the need for therapeutic uterotonics. [10]

A qualitative study published by Mannheimer SS et al on experiencing challenges when implementing AMTSL, in 12 midwives in Ghana; it was found that uterine massage was not implemented and there is need for delegating certain steps of AMTSL to other health care staff, i.e., task shifting. [11]

A cohort study published by Anne G et al in the year 2014 on the benefits of cord blood collection (CBC) in the prevention of PPH; 25% vaginal deliveries were benefited from CBC and CBC was found to be protective factor of PPH. [12]

A study published by Joshua DD et al in the year 2015 on Prevention and management of PPH: a comparison of 4 national guidelines, all organizations, (except the American College of Obstetrician and Gynaecologists), recommended AMTSL for primary prevention of PPH in all vaginal deliveries and Oxytocin was recommended universally as the medication of choice for PPH prevention in vaginal deliveries. [13]

A study published by Begley CM et al in the year 2015 on the Active versus expectant management for women in third stage of labour; it was reported that women at mixed levels of risk of bleeding, active management showed a reduction in the average risk of maternal primary haemorrhage at time of birth. [14]

A cross sectional study published by Felarmine M et al in the year 2016 on 431 facility factors influencing utilization of AMTSL among skilled birth attendants in Kenya; they commented that AMTSL was utilized by 31.5% of the birth attendants. Controlled cord traction (96.5%) was the most utilized and utilization was higher in facilities with a fridge and in facilities with standards documents in the labour ward. [15]

A study published by Priyankur R et al in the year 2016 on the Placental Blood Drainage as a Part of AMTSL after Spontaneous Vaginal Delivery; they commented that the incidence of PPH was 1% in study group and 9 % in control group and the mean drop in Hb % level was 0.6 gm/dl in study group and 1.1 gm/dl in control group. [16]

A study published by Wattar BHA et al in the year 2017 on the management of obstetric PPH: a national service evaluation of current practice in the UK; they commented that 50%of cases were minor PPH and the remaining were moderate PPH and severe PPH. The majority of women received AMTSL most commonly with Syntometrine IM and there was poor involvement of consultant obstetricians and anaesthetists in managing PPH cases, which was more prevalent when managing major PPH. [17]

A study published by Elise EN et al in the year 2018 on the Physiologic childbirth and AMTSL: A latent class model of risk for PPH; they commented that A four- class solution best fit the data; each class was clinically distinct. The two largest Classes (A and B) represented women with term births and lower average parity, with higher rates of null parity in Class B. Class A women had more physiologic birth elements and less labour induction or labour dysfunction compared with Class B. PPH and AMTSL use was higher in Class B. In Class B, AMTSL lowered risk for PPH. However, in Class A, AMTSL was associated with higher risk for PPH and delayed placental delivery (>30 minutes). [18]

A study published by Bishanga DR et al in the year 2018 on the Improvement in the AMTSL for the prevention of PPH in Tanzania; they commented that the proportion of deliveries receiving all three AMTSL steps improved significantly by 19 percentage point. [19]

A secondary analysis published by Chikkamath SB et al. in the year 2021 on the duration of third stage labour and postpartum blood; they commented that blood loss rose steeply with third stage duration in the first 10 min, but more slowly after 10 min and this trend

was observed for both Oxytocin and heat stable carbetocin and the difference in the trends for both drugs was statistically insignificant. [20]

A retrospective Review of Time to Uterotonic Administration and Maternal Outcomes After Postpartum Hemorrhage by Knoll William et al. in the year 2021; commented that Each 5-minute delay in uterotonic treatment was associated with 26% higher odds of hypotension following delivery of any type. For vaginal deliveries, each 5-minute delay was associated with 31% and 34% higher odds of hypotension and transfusion, respectively (21).

A study published by Muyanga D et al. in the year 2022 on the knowledge and skills on AMSTL for prevention of PPH among health care providers in Tanzania; commented that of all HCPs (Health Care Providers), 171 (50.3%) had adequate knowledge whereas 153 (45.0%) had adequate skills on AMTSL. [22]

3. OBJECTIVE OF THE STUDY

1.Assess AMTSL implementation practices in all levels of public health facilities.

2.Assess capacity needs for AMTSL.

3.Assess availability, storage and supply chain management of key uterotonics.

4. METHODOLOGY

A. Study design:

Quantitative Cross- Sectional study

The Situational Analysis included:

I	Record review	Labour Room (LR) and store documents: delivery load, complications, PPH deaths, confounding factors etc.
II	Interview of Providers at LR & Drug Store	Prevailing practices for AMTSL
III	Interview of beneficiaries	Assess perception
IV	Observation	Facility readiness in terms of IEC, drugs, storage/ stocks., cold chain equipment

Table 4.1: Study Design of Situational Analysis

B. Study Setting

The situational analysis was done in 15 delivery points of Dewas District of Madhya Pradesh. The reasons behind selecting district Dewas was that it has facilities with significant number of deliveries conducted, from DH to SHCs. There is a total of 31 delivery points in Dewas but only 15 are identified as delivery points based on the inclusion criteria.

Fig 4.1: Map: Dewas District of Madhya Pradesh

The district gets its name from the district headquarters town, Dewas which is said to have been derived on the basis of two traditions. One is that Dewas lies on the foot of a conical hill, known as Chamunda hill about 300 ft. above the ground level on top of which the shrine of Chamunda is located. The image of the Goddess is cut in rocky wall of a cave. It is, therefore, known as Devi Vashini or the Goddess's residence. From this the name Dewas (dev-vas) seems to have been derived. The other view of the probable origin is from the name of the founder of the village Dewasa Bania.

The present Dewas district broadly corresponds to the twin treaty States in Malwa Political charge of the Central India Agency, divided into a Senior and a Junior branch of the early twentieth century with some adjustments of other territories. There were two district chief ships with separate administrations, acting independently in most matters, sharing the same capital town of Dewas. Consequent upon the merger of princely States and the formation of Madhya Bharat State in 1948 there was reconstitution of boundaries and thus the district in the present form was constituted. The reconstituted district was, however, formed by merging 242 villages of the two tahsils of Dewas of the former Senior and Junior State, 452 villages of Sonkatch tahsil and of 99 villages of Ujjain tahsil of former Gwalior state, 99 villages of Nimanpur tahsil of former Dhar state, one village of Jawar tahsil of former Bhopal State, and then the existing tahsils of Kannod and Khategaon of former Holkar State. With the reorganization of States on linguistic basis on 1st November 1956, Madhya Bharat, with other territories got merged to form the new state of Madhya Pradesh and thus Dewas continues to be one of the districts in it.

The district is now divided in to 9 tehsils viz. Sonkatch, Dewas, Bagli, Kannod, Tonk-Khurd, Khategaon, Satwas, Hatpipliya and Udainagar. Dewas tehsil is situated on the north-western part of the district, Sonkatch on the north-eastern part, Bagli on the south, Kannod on the south-central part and Khategaon on the South-east. Weather road connects all the tahsil headquarters. The Head-quarters of Dewas tehsil, which is also the district headquarters, is situated on The Bombay-Agra National Highway No.3 and is also connected by broad-gauge railway line of western Railway.

C. Study participants

a.Service providers at delivery points: specialists, Medical Officers (MO), staff nurses,ANM.

b.Store in-charge in district, block and delivery point facilities

c.Women (mothers) during immediate post-partum period at Post Natal Care (PNC) wards

Eligibility Criteria:

Inclusion Criteria: All service providers, post partum females and store in charge of the selected facilities.

Exclusion Criteria:

Any postpartum female who was clinically unstable to be part of the study

Any person who refused to provide consent

D. Sample size

n = Z2pq/ d2

n = sample size required in each group

Z: for 5% this is 1.96, Confidence = 95%

•n = 4 * 92 * 8/ 5 * 5 = 113

•Final sample size for post-partum females = 113 + 6 = 119

•We took institutional delivery rate as the outcome variable, which is 92% as per NFHS 5 fact sheet

•Accounting for drop- in response rate of 5%

E. Sampling:

- Convenient Sampling was done to select the facilities based on the criteria.

The criteria for selection of delivery points as per the financial year data (2020-21) were:

1. Facility has a minimum caseload of deliveries (SHC, PHC, non-FRU CHC)

SHC/ HWC: 2 or more deliveries per month

PHC: 25 or more deliveries per month

Non-FRU CHC: 75 or more deliveries per month

2. Availability of Comprehensive services

FRU CHC/ SDH: availability of CEmONC

District Hospital: availability of CEmONC

• Out of 31 delivery points, 15 facilities fitting into the selection criteria were selected for the study.

- Participants were planned to be interviewed in every facility based on convenient sampling

Level	Subjects to be interviewed	Total
1	Service Providers (staff nurses, medical officers, ANM,store keepers/ in-charge) (1 in subcentre, 2 in PHC each, 3 in CHC each and 5 per DH)	35 (2 sub centre + 8 * 2 in PHC + 4 * 3 in CHC + 5 * 1 DH)
2	PNC Mothers (2 in subcenter, 5 in PHC each, 12 in CHC each and 40 in DH)	119 (2 sub centre + 5 * 8 in PHC each + 12 * 4 in CHC each + 40 * 1 DH)
	Total	154

Table 4.2: Sample Size

F. Study Variables

Exposure variables- This is not an interventional study so there is no exposure variable.

Outcome variables – An understanding was developed on knowledge and practices of providers on:

a. AMTSL

b. Supply chain management including availability of cold chain

c. Perceptions of mothers on quality of care.

G. Data collection –

Primary data was collected by conducting interviews using semi structured pre tested questionnaires in local language (Hindi). For the purpose of data collection following 3 different questionnaires were used:

- Situation Analysis Tool Questionnaire for providers including store in-charge
- Situation Analysis Tool Questionnaire for Mothers
- Situation Analysis Tool Questionnaire for Facility readiness

Physical orientation on the tools was completed in 2 days followed by the field assessment. There were 3 teams (X, Y and Z) comprising of 2 members each required for this i.e., 6 interviewers in total. The data collection and compilation were completed in 4 days by the teams (additional reserve 1 day for data compilation). A total of 7 working days was utilized for completing the assessment and data collection.

H.Data management:

a) Data collection – Data was collected on hardcopy and then entered on excel sheet. For quality check a discussion was done and quality parameters were met.

b)Data validation – Data collected was cross checked by the state SAMVEG team. Code validation was done for the codes assigned to the participants. Data was checked for completeness and accuracy.

c)Data analysis - The data was analyzed and presented as a descriptive study. Dummy tables were made for each quantitative variable. Frequency and percentage were calculated of each variable and checked for normal distribution. Mean and standard deviation were calculated. Each component of knowledge and practices by providers was presented as proportion (%). We correlated the knowledge with practices to gain a deeper understanding of the situation.

5. RESULTS

Results obtained from the respondents of District hospital are following.

5.1. Situational Analysis of Mothers

All 134 (100%) female respondents delivered in the hospital facility, out of which 85 (63%) women had undergone normal vaginal delivery (NVD) and 49 (37%) had undergone lower segment caesarean section (LSCS) delivery. Out of total respondents, 103 (77%) deliveries were conducted at DH with 49 of them (48%) being LSCS. (Table 5.1.1)

Table 5.1.1: Facility wise Distribution of Respondents

	Number of Respondents	**Frequency**
Hospital Delivery	134	100%
DH	103	77%
• DH NVD	54	52%
• DH LSCS	49	48%
CHC	29	22%
PHC	2	1%
Subcentre	0	0

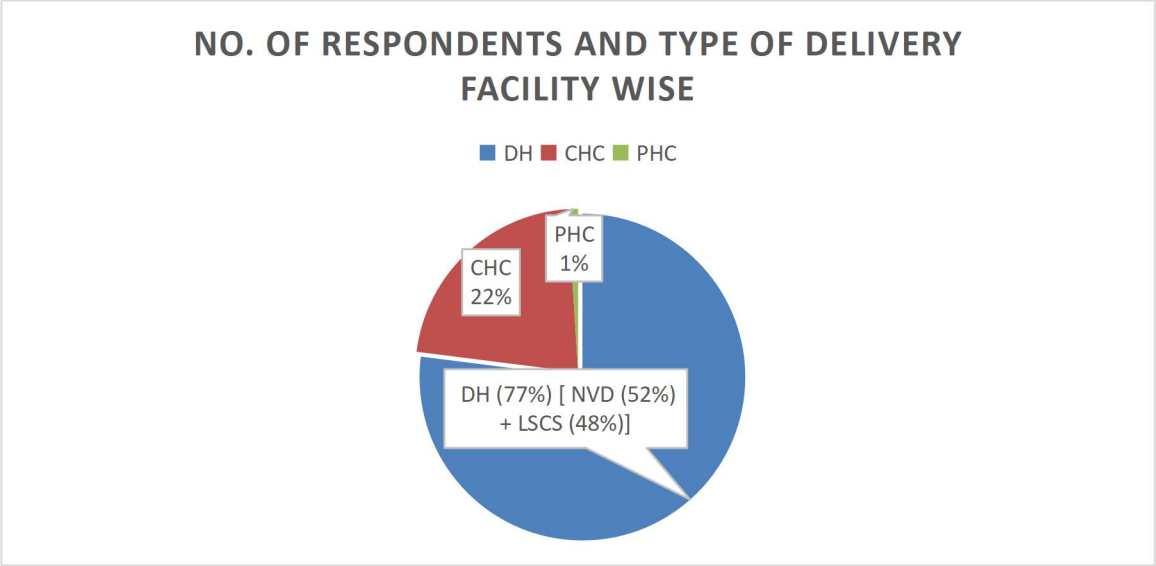

Fig 5.1.1: No. Of Respondents and type of Delivery Facility Wise

Out of total of 134 females, 116 (86%) of the women were informed about the procedures/ practices i.e., administration of drugs, induction/ augmentation of labour) being carried out (Table 5.1.2)

Table 5.1.2: Information about Procedures/ Practices

Informed consent taken about the procedures/ practices (i.e., administration of drugs, induction/ augmentation of labour)	**Frequency**	**Percentage**
Yes	116	86%
No	17	13%
Do not remember	1	1%
N	134	100%

Only 21 females (16%) received uterotonics for induction of labour. All of these 21 females knew that they were being administered uterotonics. (Table 5.1.3)

Table 5.1.3: Usage of Uterotonics for Induction of Labour

Did you receive any drug(s) (uterotonics) for induction of labour?	**Frequency**	**Percentage**
Yes	21	16%
No	110	82%
Do not remember	3	2%
N	134	100%

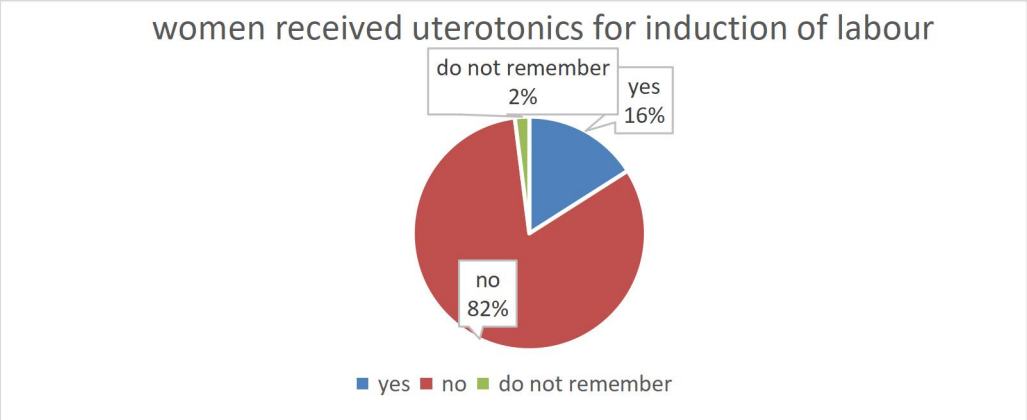

Fig 5.1.2: Women Received Uterotonics for induction of labour

Only 21 (16%) females know about drug(s) that can induce/ augment labour. Out of these 21, 2 females had requested for administration of the drug. (Table 5.1.4)

Table 5.1.4: Knowledge about Drug Inducing/ Augmenting Labour

Know about drug(s) that can induce/ augment labour?	**Frequency**	**Percentage**
Yes	21	16%
No	113	84%
N	134	100%

66 (49%) women were aware that there is danger of excess bleeding after delivery and out of which 18 (27%) were aware that there are drug(s) that can prevent and treat such bleeding. (Table 5.1.5)

Table 5.1.5: Awareness about Post- Partum hemorrhage

Are you aware that there is danger of excess bleeding after delivery?	**Frequency**	**Percentage**
Yes	66	49%
No	68	51%
N	134	100%

Out of the 85 females who had undergone NVD, 81% (69) of the women were given uterine massage after delivery of baby. (Table 5..6)

Table 5.1.6: Usage of Uterine Massage after delivery of Baby

Uterine massage after delivery of baby	**Frequency**	**Percentage**
Yes	69	81%
No	14	17%
Do not remember	2	2%
n	85	100%

Fig 5.1.3: Uterine massage given after delivery of baby.

Only 104 (78%) women were encouraged to start early breastfeeding (EBF) (within an hour of childbirth). (Table 5.1.7) 63 (47%) women started breastfeeding their baby within an hour of birth, 32% women started after an hour of birth and 21% women did not even start at the time of interview (i.e., more than 2 hours after birth).

Table 5.1.7: Encouragement for EBF

Encouragement to start early breastfeeding (within an hour of childbirth)?	**Frequency**	**Percentage**
Yes in NVD cases	76	57%
Yes in LSCS cases	28	21%
No	29	21%
Do not remember	1	1%
N	134	100%

5.2 Situational Analysis of facility readiness

Out of 15 facilities, AMTSL posters were displayed in 5 facilities in the labour room, in 2 facilities in the patient waiting area, in 2 facilities in the nursing area and in 2 facilities posters were displayed in areas other than these. (Table 5.2.1 & Table 5.2.2)

Table 5.2.1: Availability of AMTSL poster

Protocol for preventing PPH – AMTSL poster is available in health facility? (By observation)	**Frequency**	**Percentage**
Yes	9	60%
No	6	40%
N	15	100%

Table 5.2.2: Places where AMTSL poster were displayed

Places where the AMTSL poster is displayed in your facility? (observe) Multiple answers	**Frequency**
In Emergency receiving area	0
In Labor Room	5
Patient waiting area	2
Nursing area	2
Any other place (Medical Officer cabin)	1
N	9

Out of 35 interviews of service providers in 15 facilities, 17 maintain the record of the administration of preventive doses of uterotonic in case sheet, 20 maintain the record in register while 6 do not maintain any record at all. (Table 5.2.3)

Table 5.2.3: Record maintenance of uterotonics

Where record of the administration of preventive doses of uterotonic is maintained? Multiple Answers (Multiple Response) (interview & record review)	**Frequency**
Case Sheet	17
Register	20
Others	0
No records	6
N	15

Out of total of 15 facilities, only 4(27%) facilities maintain the record of time of administration of uterotonics.

Out of total of 35 interviews of service providers in 15 facilities, PPH tray was available in only 9 (60%) facilities.

In case of requirement of emergency referral, from 4 facilities it takes up to 30 minutes, from 5 facilities it takes 31 minutes to 60 minutes and from 6 facilities it takes more than 60 minutes to reach the nearby referral facility. (Table 5.2.4)

Table 5.2.4: Time required to reach nearby referral facility

In case of requirement of emergency referral, how much time it generally takes to reach nearby referral (BEmONC/ CEmONC) facility? (interview)	**Frequency**	**Percentage**
Up to 30 minutes	4	27%
31 minutes to 60 minutes	5	33%
More than 60 minutes	6	40%
N	15	100%

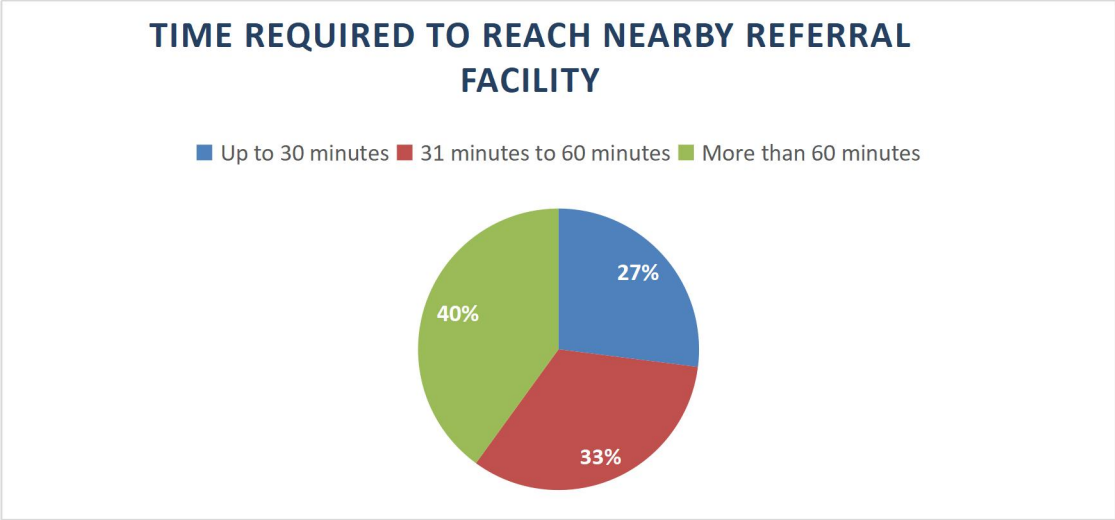

Fig 5.2.1: Time required to reach Nearby Referral Facility.

Out of 35 interviews of service providers, 6 service providers have undergone SBA training alone , 2 has undergone DAKSHATA training alone, 2 have undergone training other than these, 13 service providers have undergone SBA, DAKSHATA and other trainings and 12 have not undergone any training.

Table 5.2.5: Training on LR practices

Have you undergone any training on LR practices inc. PPH prevention and management? Multiple Answers (interview)	**Frequency**
SBA	19
DAKSHATA	11
Others	5
No training	12
N	35

5.3 Situational Analysis of Service Providers

In all 15 facilities according to the previous year record (01st April 2021 to 31st March 2022) total number of deliveries was 16,895. Out of these 16,895, 14,468 were normal vaginal deliveries (NVD) and 2,427 were lower segment caesarean section (LSCS). LSCS was done in district hospital (DH) only. Number of PPH cases in the same year were 45, 10 PPH cases were referred out and total maternal deaths were 3. Out of these 3, maternal death due to PPH were 2. (Table 5.3.1).

Table 5.3.1: Number of deliveries in all facilities

Total number of Deliveries	16895
Vaginal Deliveries	14468
Assisted Deliveries	0
Caesarean Deliveries	2427
Number of PPH Cases in last 1 year	45
Number of maternal deaths	3
Number of maternal deaths due to PPH	2
Number of PPH cases referred out	10

Total maternal deaths due to PPH according to the previous year records were only 2. Out of these 2, anaemia and grand multipara were the risk factors in both cases. Additional history of uterine surgery was the risk factor in 1 and previous C- section was the risk factor in 1 case. (Table 5.3.2).

Table 5.3.2: Risk factors in died cases

Risk factors in cases who died due to PPH (01st April 2021 to 31st March 22) (There were multiple responses) Number of maternal deaths due to PPH=2, so n =2	**Frequency**
Anaemia	2
Past H/o uterine surgery	1
C-Section	1
Grand Multipara	2
Induction of labour, Primipara, No AMTSL, Preterm Birth, Genital Tract Injury, IUFD, Other	**0**

Out of 36 providers, 31 (86%) providers assess risk for PPH in all cases while 2 (6%) providers assess risk in some cases. From these 33 providers, we got multiple answers 25 document it in register, 9 document it in case sheet and 3 document it in other than these. In 3 facilities record is maintained in more than 1 place i.e. register, case sheet and other (Table 5.3.3).

Table 5.3.3: Risk assessment for PPH and documentation

(a) Do you assess risk for PPH in all cases coming in labour?	Frequency	PERCENTAGE
Yes, in all cases	31	86%
Yes, in some cases	2	6%
No, don't assess	3	8%
N	36	100%

(b) If yes, where do you document this? Multiple answers (n=36 as per table 5.3.3(a))	Frequency
Register	25
Case-sheet	9
Other	3

Only 9 providers administer uterotonics routinely for augmentation of labour. From these 9 providers, we got multiple answers, 9 uses injection oxytocin while 5 uses tablet misoprostol whereas none use Inj. Ergometrine / Methylergometrine or Inj. 15-Methyl Prostaglandin F2α.

All 36 service providers practice AMTSL to prevent PPH for all women routinely. From these 36 providers we got multiple answers, all 36 providers were using Injection Oxytocin, 16 providers were using Tab. Misoprostol and 3 providers were using Inj. 15-Methyl Prostaglandin F2α. Out of these 36, 33 providers know all three steps of AMTSL (Table 5.3.4).

Table 5.3.4: Practice of AMTSL for PPH prevention

(a) Routinely practice Steps of AMTSL (Multiple Responses) n=36	**Frequency**
Use of Uterotonic	36
Controlled Cord Traction	34
Uterine Massage	34
None	0
Know all three steps	33
(b) Drugs used for AMTSL. (Multiple answer) n =36 as per table 5.3.4(a)	**Frequency**
Injection Oxytocin	36
Tab. Misoprostol	16
Inj. Ergometrine/Methylergometrine	0
Inj. 15-Methyl Prostaglandin F2α	3
N	36

Out of 36 providers ,34(94%) providers administer uterotonic under AMTSL immediately after birth of baby and 2(6%) providers administer 5 minutes after the birth of baby (Table 5.3.5).

Table 5.3.5: *Time of administration of uterotonic under AMTSL*

Time for administering uterotonic under AMTSL	**Frequency**	**PERCENTAGE**
Immediately after birth of baby	34	94%
5 minutes after the birth of baby	2	6%
10 minutes after the birth of baby	0	0
N	36	100%

Out of total of 36 providers, 34(94%) providers inform the women prior to administering the uterotonic.(Table 5.3.6)

Table 5.3.6: Weather women is informed prior to administrating uterotonic

Do you inform the women prior to administering the uterotonic?	Frequency	PERCENTAGE
YES	34	94%
NO	2	6%
N	36	100%

Out of total 36 providers, according to 23 (64%) providers there are women who require additional uterotonics even after routine preventive dose under AMTSL, 20 (87%) providers document such additional doses. The documentation is reported to be done in case sheet and register. (Table 5.3.7).

Table 5.3.7: Does women require additional uterotonics even after routine preventive dose under AMTSL and their documentation.

(a) Are there women who require additional uterotonics even after routine preventive dose under AMTSL?	Frequency	PERCENTAGE
YES	23	64%
NO	13	36%
N	36	100%

(b) Do you document such additional dose(s)? n=23 as per table 5.3.7(a)	frequency	PERCENTAGE
YES	20	87%
NO	3	13%
N	23	100%

(c) Where do you document such additional dose(s)? Multiple answers n=20 as per table 5.3.7(b)	Frequency
Register	10
Case-sheet	13
Other	2
N	20

From 36 providers we got multiple answers with maximum response of monitoring blood loss and maternal vitals in the immediate post-partum period (Table 5.3.8).

Table 5.3.8: Parameters monitored in the immediate post-partum period

What all parameters do you monitor in the immediate postpartum period? Multiple answers	Frequency
Uterine tonus	18
Blood loss	32
Maternal vitals	32
Emptying of bladder	19
Uterine height	11
Others	1

From 36 providers we got multiple answers, 31 providers diagnose PPH with loss of 500 ml or more of blood, 13 consider blood loss sufficient to cause signs and symptoms of hypovolemia is PPH and according to 20 providers woman who soaks 1 pad or cloth in <5 min are diagnosed with PPH. Out of 36 providers,16(44%) providers classify PPH cases into mild, moderate and severe (Table 5.3.9).

Table 5.3.9: Diagnosis of PPH

Identification/ diagnosis of PPH (till 24 hours postpartum) multiple answers	Frequency
Loss of 500 ml or more of blood	31
Blood loss sufficient to cause signs and symptoms of hypovolemia	13
Woman soaks 1 pad or cloth in <5 min	20
None of the above	2

(b) Do you classify PPH cases?	Frequency	PERCENTAGE
YES	16	44.00%
NO	20	56%
N	36	100%

(c) If yes, what classification terminology you use? Multiple answers n=16 as per table 5.3.9(b)	Frequency
Mild	16
Moderate	16
Severe (blood loss ≥1000 ml)	16

From 36 providers we got multiple answers, 36 (100%) providers store Injection Oxytocin, 2 providers store Tab. Misoprostol and 5 providers store Inj. 15-Methyl Prostaglandin F2α in refrigerator.

Out of total 15 facilities, refrigerator was available for storage of uterotonic at LR in 14 (93%) facilities. Out of 13 drug stores, refrigerator was available in 7 drug stores and ILR was available in 1 drug store. At OT of district hospital there was no cold chain equipment (Table 5.3.10).

Table 5.3.10: Availability of cold chain equipment for uterotonic storage

Cold Chain Equipment for Storage of Uterotonic		
Labour Room		
	Frequency	PERECENTAGE
REFRIGERATOR	14	93%
NOT AVAILABLE	1	7%
N	15	100%
OT		
REFRIGERATOR	0	0
NOT AVAILABLE	2	100%
n (CEmOC)	2	
DRUG STORE		
REFRIGERATOR	7	54%
ILR	1	8%
NOT AVAILABLE	5	38%
N	13	100%

All 36 providers store oxytocin in refrigerator but not in Ice compartment, 5 providers store Inj. 15-Methyl Prostaglandin F2 α in refrigerator but not in Ice compartment and 1 provider store it other than these.

Out of 13 store personnel, 7 (54%) store personnel maintain cold chain while delivering Oxytocin from store to next level facilities.

Out of 13 store personnel, 11 (86%) indent uterotonics monthly at facility store, 1 (7%) indents quarterly and 1 (7%) indent it for unspecified time interval. (Table 5.3.11). Out of 13 store personnel 12(92%) maintain buffer stock at store.

Table 5.3.11: Frequency of indenting uterotonics at store.

Frequency of indenting uterotonics at facility	**Frequency**	**PERCENTAGE**
Monthly	11	86%
Quarterly	1	7%
Weekly	0	0
Unspecified	1	7%
N	13	100%

Out of 15 facilities, 11 indent uterotonics monthly at LR, 1 indent weekly, 1 indent quarterly and 2 indent uterotonics for an unspecified time interval (Table 5.3.12).

Table 5.3.12: Frequency of indenting uterotonics at LR

Frequency of indenting uterotonics at LR?	Frequency	PERCENTAGE
Monthly	11	73%
Weekly	1	7%
Quarterly	1	7%
Unspecified	2	13%
N	15	

Out of 13 stores , oxytocin was stock out at 1 store and misoprostol was stock out at 1 store.

All 13 store personnel, have provision of local purchase in case of stock-out situation.

Out of total 15 facilities, 1 facility had stock-out of uterotonic in last 6 months at LR of carboprostol.

6. DISCUSSION

6.1 Situational Analysis of Mothers

Labour was induced in slightly more than 10% of deliveries and females were being informed before administration of the drugs. Similar findings were observed in the study on factors and outcomes associated with the induction of labour in Latin America where 11.4% were induced and induced labour is, however, associated with poorer maternal and perinatal outcomes than spontaneous labour [9]. Therefore, labour induction should only be done in complicated cases where natural birth is not possible.

81% (69) of the women were given uterine massage after delivery of the baby.

A qualitative study published by Mannheimer SS et al on experiencing challenges when implementing AMTSL, in 12 midwives in Ghana; it was found that uterine massage was not implemented and there is need for delegating certain steps of AMTSL to other health care staff, i.e., task shifting [11]. The difference could be due to the small sample size in the study done in Ghana and in the current study majority of the respondents were from DH who would be trained.

6.2 Situational Analysis of facility readiness

Almost all the facilities maintain the record of the administration of preventive doses of uterotonic in register, case sheet and others. The record of appropriate time of administration of uterotonics was maintained in only 4 facilities.

According to a retrospective review of Time to Uterotonic Administration and Maternal Outcomes After Postpartum Haemorrhage by Knoll William et al. in the year 2021; commented that Each 5-minute delay in uterotonic treatment was associated with 26% higher odds of hypotension following delivery of any type. For vaginal deliveries, each 5-minute delay was associated with 31% and 34% higher odds of hypotension and transfusion, respectively [21]. The difference is because they are not aware of the importance of time of uterotonic administration and they do not consider it worth mentioning.

Out of 35, 23 (66%) service providers have undergone training on LR practices including PPH prevention and management like SBA, DAKSHATA and others. 34% service providers have not undergone any training. The Ministry of Health and Family Welfare (MoHFW), GoI, has developed an initiative termed 'Dakshata' (means adroitness) to improve the quality of care at the delivery points .The initiative is strategic in nature as it ultimately tries to build capacity of the providers to prevent and manage complications that are major causes of maternal and new born mortality during and after childbirth. GoI policy initiative to empower the ANM, LHV, SN and Multipurpose Health Worker – Female (MPHW-F) for undertaking certain life saving measures to make them competent. [6] . The gap is due to the lack of awareness and availability of such trainings. All the service providers must have awareness about the LR practices and its need, each facility must ensure that every provider is trained for LR practices including PPH prevention and management.

6.3 Situational Analysis of Service Providers

Few providers administer uterotonics routinely for augmentation of labour and oxytocin was used more than any other uterotonics like – tablet misoprostol or Inj. 15-Methyl Prostaglandin F2α. A study published by Guerra G V et al.in the year 2009 on factors and outcomes associated with the induction of labour in Latin America among all women who gave birth during the study period in 120 participating institutions., it was found that out of the total deliveries, 11.4% were induced and induced labour is, however, associated with poorer maternal and perinatal outcomes than spontaneous labour. [9] Use of uterotonic for routine augmentation of labour should be discontinued and done only in complicated cases or where natural birth is not possible.

All the service providers practice AMTSL to prevent PPH for all women routinely and few of them do not remember all three steps of AMTSL. A study published by Bishanga DR et al in the year 2018 on the Improvement in the AMTSL for the prevention of PPH in Tanzania; they commented that the proportion of deliveries receiving all three AMTSL steps improved significantly by 19 percentage point. The quality of PPH prevention increase substantially in facilities that implemented competency-based training and quality improvement interventions [19]. The quality of care can be improved by promoting use of up-to-date guidelines and ensuring regular training and mentoring for health care providers so that they adhere to the guidelines for care of women during labour. These measures can reduce maternal and new born mortality.

Almost all providers were administrating uterotonic under AMTSL immediately after birth of baby and few out of them administer 5 minutes after the birth of baby. According to a retrospective Review of Time to Uterotonic Administration and Maternal Outcomes

After Postpartum Haemorrhage by Knoll William et al. in the year 2021; commented that Each 5-minute delay in uterotonic treatment was associated with 26% higher odds of hypotension following delivery of any type. For vaginal deliveries, each 5-minute delay was associated with 31% and 34% higher odds of hypotension and transfusion, respectively. [21]

According to 64% providers there were women who require additional uterotonics even after routine preventive dose under AMTSL and documentation is reported to be done in case sheet and register of such cases.

All the providers store Inj. Oxytocin in refrigerator but not in Ice compartment, only some out of them store Tab. Misoprostol and Inj. 15-Methyl Prostaglandin F2α in refrigerator but not in Ice compartment. Refrigerator was available for storage of uterotonic at LR in 14 facilities only. Out of 13 drug stores, refrigerator was available in only 7 drug stores and ILR was available in 1 drug store. At OT of district hospital there was no cold chain equipment. They used to keep uterotonics at labour room refrigerator which is close to OT. Cold chain while delivering Oxytocin from store to next level facilities was maintained in only 7 drug stores. The issues with usage of Oxytocin are to maintain a proper supply chain. However, due to its susceptibility to degradation from exposure to heat leads to its reduced effectiveness in preventing PPH from uterine atony. [3]. Oxytocin has been shown to be a heat-sensitive product that requires refrigeration during transport, distribution, and storage at all points in the supply chain [23]. According to this existing literature cold chain equipment must be there at all facilities in order to maintain the efficacy of uterotonics.

7. Recommendations

1.Availability of service providers in the facility and all service providers must have undergone training on LR practices including PPH prevention and management like – SBA, DAKSHATA and others. Providers must remember all the three steps of AMTSL and uterotonics must be administered immediately after the birth of baby.

2.Use of uterotonics routinely for the induction/ augmentation of labour should be discontinued.

3.The record of time of administration of uterotonics must be maintained in all facilities.

4.Cold chain equipment must be available in all the facilities at Labour Room and drug stores.

5.Cold chain while delivering Oxytocin from store to next level facilities must be maintained.

6.Buffer stock must be maintained in labour room and by store personnel at store in all facilities.

8. Limitations

- Convenient sampling
- Change from initial plan of data collection as required participants could not be achieved

9. Conclusion

According to WHO prophylactic management by provision of uterotonics provided by the SBA during AMTSL is a lifesaving procedure. Uterotonics have a critical role in obstetrics, notably for prevention and treatment of PPH.

Unavailability of gynaecologist in CHC Bagli which is a CeMONC facility and no LSCS were conducted in the past one year.

In slightly more than 10% deliveries, uterotonics were being used for induction of labour. Although females were being informed prior to the administration of such drug(s). Out of 35, 23 (66%) providers were administrating uterotonics routinely for augmentation of labour and oxytocin is used more than any other uterotonics

The record of appropriate time of administration of uterotonics is maintained in only 4 facilities.

34% service providers have not undergone training on LR practices including PPH prevention and management like SBA, DAKSHATA and others

3 (9%) service providers do not remember all the three steps of AMTSL .Few of them were administrating uterotonics 5 minutes after the birth of baby.

Refrigerator was not available for storage of uterotonic at LR in 1 facility. Out of 13 drug stores, cold chain equipment was available in only 8 drug stores. Cold chain while delivering Oxytocin from store to next level facilities was not maintained in 6 drug stores.

Buffer stock was not maintained by one store personnel at store. Out of 13 stores, oxytocin was stock out at 1 store and misoprostol was stock out at 1 store. Out of total 15 facilities, 1 facility had stock-out of uterotonic in last 6 months at LR of carboprostol.

The study indicates need for AMTSL implementation practices in all levels of public health facilities, capacity needs for AMTSL and proper availability, storage and supply chain management of key uterotonics.

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