



Maternal Deaths and Denial of Maternal Care

in Barwani District, Madhya Pradesh: Issues and Concerns

Dr. Subha Sri, Sarojini N and Renu Khanna

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Jan Swasthya Abhiyan
CommonHealth
Sama - Resource Group for Women and Health
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Dr. Subha Sri, Sarojini N and Renu Khanna

Jan Swasthya Abhiyan, Sama and CommonHealth

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Jan Swasthya Abhiyan (PHM India)
National Secretariat
C/o Madhya Pradesh Vigyan Sabha,
Village Sagonikala, Post Kolua Khurd,
Raisen Road, Bhopal – 462021
Email: jsa.secretariat@gmail.com
Website: www.phm-india.org

CommonHealth
Secretariat
C/o Centre for Enquiry into Health
and Allied Themes (CEHAT),
Survey No. 2804 & 2805, Aram
Society Road, Vakola,
Santacruz (East), Mumbai 400 055.
Email: cmnhsa@gmail.com
Website: www.commonhealth.in

Sama - Resource Group for Women &
Health
B-45, 2nd Floor, Main Road Shivalik,
Malviya Nagar
New Delhi -110017
Email: sama.womenshealth@gmail.com
Website: www.samawomenshealth.org

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Chapter 1

Introduction

1.1 Background

Maternal mortality remains a huge problem globally. About 99 per cent of maternal deaths occur in developing countries, with India contributing the largest number. India's Maternal Mortality Ratio (MMR) is estimated to be 254 per 100,000 live births (SRS, 2009)¹. While this has declined from 301 per 100,000 births in 2001–2003 to 254 per 100,000 births in 2004–2006, it is still a cause for concern. Every year, about 80,000 women die due to pregnancy-related complications in India (UNICEF, 2009)². It is estimated that two thirds of these deaths take place in the Empowered Action Group states of Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttaranchal and Uttar Pradesh (SRS 2009). According to a UNICEF study, 61 per cent of maternal deaths occur in Dalit and tribal communities.

Worldwide, the Millennium Development Goals (MDGs) have brought attention to the issue of maternal mortality. In India, in the last few years, the government has initiated several interventions to address the issue of maternal mortality. The National Rural Health Mission (NRHM)³ has provided funding to maternal health as one of its key interest areas. The Indian Public Health Standards (IPHS) provide a comprehensive package of services to be available at various levels of facilities. The NRHM also establishes accountability structures like the Village Health and Sanitation Committees (VHSC) and Patient Welfare Societies at various levels of facilities. In addition, the community monitoring programme under the NRHM offers an opportunity to establish accountability frameworks. However, the major policy initiative of the Government of India (GOI) towards addressing this issue has been to push for greater institutionalisation of deliveries. This has been furthered by the Janani Suraksha Yojana (JSY) that provides cash incentives for institutional births. Recently, the Government of India issued National Guidelines for states to carry out Maternal Death Reviews at both community and facility level.

Studies show that five direct complications account for almost three-fourths of all maternal deaths - haemorrhage, sepsis, eclampsia, obstructed labour and unsafe abortion. It is also known that while very often complications cannot be predicted, with adequate care, maternal deaths can be prevented. It is now well accepted that skilled care at delivery with timely access to Emergency Obstetric Care is one of the key elements to reduce maternal mortality.

¹ Registrar General of India. (2009). Special Bulletin on Maternal Mortality in India 2004–06. *Sample Registration System*. New Delhi: Registrar General of India.

² UNICEF. (2009). *Maternal and Perinatal Death Inquiry and Response*. Retrieved from <www.mapedir.org> on 5 February 2011.

³ The NRHM was launched in 2005 by the Ministry of Health and Family Welfare, Government of India with the goal of improving “the availability of and access to quality health care by people, especially for those residing in rural areas, the poor, women and children”.

The Three Delays framework⁴ is commonly used to understand contributions to maternal deaths.

Phase I Delay - Delay in deciding to seek care on the part of the individual, the family, or both.

Phase II Delay - Delay in reaching an adequate health care facility.

Phase III Delay - Delay in receiving adequate care at the facility.

However, several root causes underlie maternal deaths - chronic malnutrition, anaemia, early marriage and childbearing, and gender power relations - leading to weak control over resources and decision making; each of these increases the risks of maternal death and morbidity (Gita Sen, 2007)⁵. Cook et. al. (2001) in a paper for the World Health Organisation (WHO)⁶ outline three fundamental causes of maternal mortality:

- Medical causes, consisting of direct medical problems, and pre-existent or co-existent medical problems that are aggravated by pregnancy, such as anaemia or malaria;
- Health systems, laws and policies that affect availability, accessibility, acceptability and quality of reproductive health services; and
- Underlying socio-legal conditions.

There is a need to address these root causes as well to bring down maternal deaths. Several recent publications have focused on the issue of maternal deaths in different states of India. A recent report by Human Rights Watch⁷ studying maternal deaths in the northern state of Uttar Pradesh (UP) identified four important reasons for the continuing high maternal mortality rate in UP - barriers to emergency care, poor referral practices, gaps in continuity of care, and improper demands for payment as a condition for delivery of health care services. The report also points out that failures in two key areas of accountability are an important reason for the continuing high numbers of maternal deaths - failure to gather the necessary information at the district level on where, when, and why deaths and injuries are occurring so that appropriate remedies can be devised; and failure of grievance and redress mechanisms, including emergency response systems. This report also stresses the need to develop a robust maternal death reporting and review system.

Two recent articles document the experience of the southern state of Tamil Nadu (TN) in decreasing maternal mortality levels in recent years. A monograph by WHO⁸ notes that social transformation, supported by a committed political system irrespective of the party in power, along with a paradigm shift in the public health policy towards emphasis on maternal and newborn health, are the key factors behind these advances. Overall, their impact is reflected in improved literacy; in the reduced incidence of early marriage, early pregnancy, and frequent pregnancies; and in a high level of public awareness of family planning and good nutrition.

TN's dynamic public health system has made use of this environment to progress towards its goal of making pregnancy safer through effective, women-centered initiatives. Padmanabhan et al⁹ document the various initiatives towards this, including the establishment of maternal death registration and audit, establishment

⁴ Thaddeus, S. and Maine, D. (1994). *Too far to walk – maternal mortality in context*. Soc Sci Med, 38(8) 1091-110.

⁵ Sen, G., Govender, V., and Cottingham, J. (2007). *Maternal and Neonatal Health: Surviving the Roller-Coaster of International Policy*. Occasional Paper Series, Number 5, Centre for Public Policy, Indian Institute of Management Bangalore.

⁶ Cook, R. et al. (2001). *Advancing Safe Motherhood through Human Rights*. WHO.

⁷ Human Rights Watch. (2009). *No Tally of the Anguish: Accountability in Maternal Health Care in India*.

⁸ World Health Organisation. (2009). *Safer pregnancy in Tamil Nadu: from vision to reality*. World Health Organisation, Regional Office for South-East Asia.

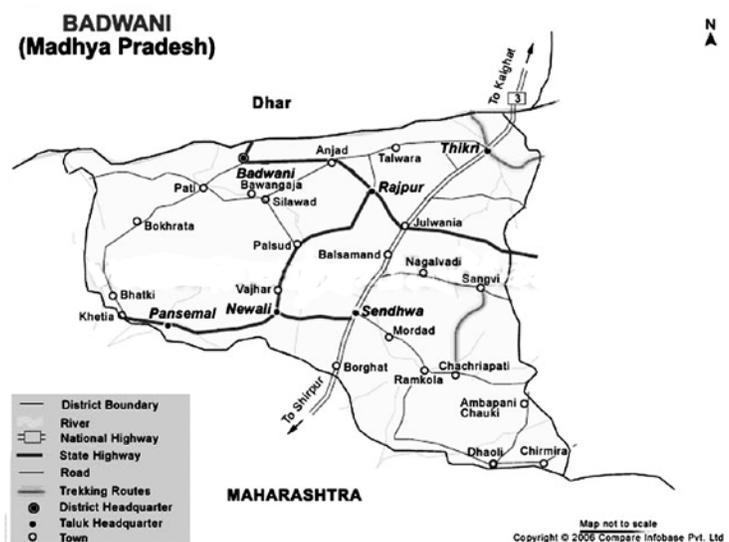
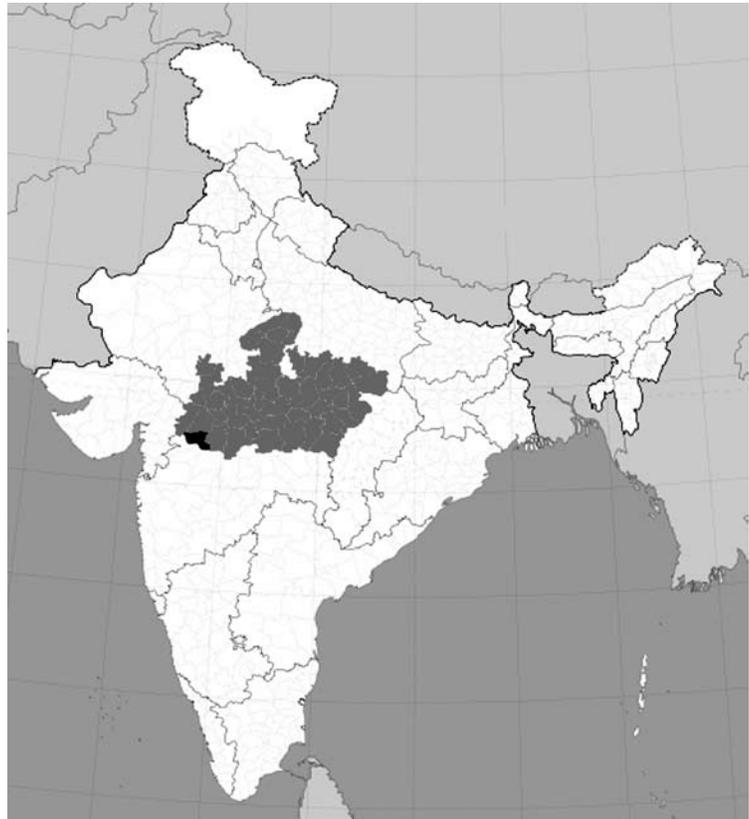
⁹ Padmanabhan P, Sankara R.P., Mavalankar D.V. (2009). *Innovations and Challenges in Reducing Maternal Mortality in Tamil Nadu, India*. J Health Popul Nutr, 27(2) 202-219.

and certification of comprehensive emergency obstetric and newborn-care centres, 24-hour × 7-day delivery services through posting of three staff nurses at the Primary Health Centre (PHC) level, and attracting medical officers to rural areas through incentives in terms of reserved seats in postgraduate studies and others.

1.2 Madhya Pradesh and Barwani

Madhya Pradesh (MP), located in the geographical centre of the country, is one of the states in the Empowered Action Group of the GOI. It is the second largest state in India in terms of size. Scheduled Castes and Scheduled Tribes comprise 15.2 per cent and 20.3 per cent of the state's total population respectively, and 73 per cent of people live in rural areas (Census 2001). Out of an estimated population of 60 million, 37 per cent of the rural population is estimated as living Below the Poverty Line (BPL). The state is typically characterised by difficult terrain, high rainfall variability, uneven and limited irrigation, and deforestation and land degradation.

One of the 50 districts of Madhya Pradesh, Barwani is located in the south west of the state. The river Narmada forms its northern border. The district is surrounded by Satpuda and Vindhya forest ranges. Barwani is amongst the poorest and most backward districts in Madhya Pradesh. Of a total population of 10,81,039, 67 per cent are constituted by Scheduled Tribes (Census 2001). The district is administratively divided into three sub divisions - Barwani, Sendhwa and Rajpur - and eight tehsils - Barwani, Pati, Sendhwa, Niwali, Pansemal, Rajpur, Anjad and Thikri. The terrain is hilly and dry, with frequent droughts. Agriculture and labour work are the primary occupations of a large percentage of the district's population. Barwani has been identified by the Government of Madhya Pradesh as one of ten districts with very poor indicators, low population density and weak infrastructure, in need of special attention.



Source : <http://www.mapsofindia.com/maps/madhyapradesh/districts/badwani.htm>

	Barwani	Madhya Pradesh	India
Total population*	1,081,039	60,348,023	1,028,737,436
Scheduled castes (%)*	6.3	15.2	16.2
Scheduled tribes (%)*	67	20.3	8.2
Sex ratio*	971	919	933
Female literacy rate (%)*	31.8	50.3	53.7
Crude birth rate [#]		28	22.8
Total fertility rate [@]		3.1	2.7

Source : *Census 2001
[#]Sample Registration System 2008
[@]National Family Health Survey 3

	Barwani	Madhya Pradesh	India
Households using safe drinking water (%)*	20.8	80.8	84.4
Households with electricity connection (%)*	79.7	75.6	70.3
Households with access to toilet facility (%)*	13.2	22.9	49.3

Source : *District Level Household Survey 3

	Barwani	Madhya Pradesh	India
MMR*		335	254
IMR*		70	53
Percentage of girls marrying before completing 18 years [#]	57.5	29	22.1
Total unmet need for family planning(%) [#]	26.1	19.3	21.3
Ever married women aged 15-49 who are anaemic [@]		57.7	55
Women whose body mass index is below normal (%) [@]		40.1	36
Children 12-23 months who are fully immunized [#]	19.3	36.2	54
Children under 3 years breastfed within one hour of birth (%) [#]		43.1	40.5
Children age 0-5 months exclusively breastfed (%) [#]		51.5	46.8

Source : *Sample Registration System 2009
[#]District Level Household Survey 3
[@]National Family Health Survey 3

The Tables 1-5 give a comparison of selected demographic and health indicators of Barwani district, Madhya Pradesh and India.

Madhya Pradesh's health indicators are generally poor compared to the figures for the country. Its Maternal Mortality Ratio (MMR) is 335 per 100000 live births compared to a corresponding figure of 254 per 100,000 live births for India. Its performance in other maternal health indicators is also comparatively poor, as highlighted in the table above.

The indicators for Barwani are poor even when compared to the rest of the state. According to the Madhya Pradesh Human Development Report 2007, the district has the second lowest Human Development Index amongst all districts of Madhya Pradesh. This report also gives the MMR figure for the district based on 2002 data as 905 per 100000 live births. In comparison, MMR of Madhya Pradesh in 2001-03 was 379 per 100,000 live births (SRS, 2003).

A comparison of various indicators for Barwani as compared to those for Madhya Pradesh as per the Health Management Information System (HMIS) reporting of the state between April to November 2010 is presented in Table 5.

The government of Madhya Pradesh has implemented several programmes to improve the state of maternal health.

Under the NRHM, it has planned to strengthen in phases 170 health institutions as Comprehensive Emergency Obstetric and Neonatal Care (CEmONC) Centres; all of which were to be functional by 2010. It has also planned to strengthen 500 health facilities to provide Basic Emergency Obstetric and Neonatal Care (BEmONC) services.

The Project Implementation Plan (PIP) of Reproductive and Child Health II (RCH II) states that the operationalisation of four CEmONC centres and 11 BEmONC centres in District Barwani was to be achieved by 2010.

The JSY provides incentives to mothers and service providers for delivery in health facilities.

Since 2005 - 06, under the Janani Express Yojana, the state has awarded contracts to private vehicles to provide free transport services for women to travel to institutions for delivery, and in case of obstetric complications. This is aimed at reducing the second delay that leads to maternal mortality.

	Barwani	Madhya Pradesh	India	Source
Pregnant women age 15-49 who are anaemic (%)		57.9		NFHS3
Mothers who had at least 3 antenatal care visits for their last birth (%)	21.3	34.2	49.8	DLHS 3
Mothers who had no antenatal care for their last birth (%)		20.3	22.8	NFHS 3
Mothers who consumed 100 IFA tablets when they were pregnant with their last child (%)		49.9	46.6	DLHS 3
Percentage who received all recommended type of antenatal care		7.2	15	NFHS 3
Birth assisted by a doctor/nurse/LHV/ ANM/ other health personnel (%)		32.7	46.3	NFHS 3
Institutional births (%)	29.4	47.1	47	DLHS 3
Mothers who received postnatal care within 2 days of delivery for their last birth (%)		28.5	37.3	NFHS 3

Under the Deen Dayal Antyoday Upchar Yojana, free treatment and investigation facility is provided to patients belonging to BPL families who are hospitalised in government hospitals, for up to a limit of Rs. 20000/- per family per annum. This benefit is available for all diseases and conditions, including for delivery.

Under the Janani Sahayogi Yojana, private institutions, for the payment of a pre-fixed package for services rendered, have been accredited to provide free EmOC services to women belonging to BPL households.

Training of medical officers in Manual Vacuum Aspiration has been done in order to provide safe abortion services. Training of Medical Officers through short courses in Life Saving Anaesthesia Skills (LSAS) and Emergency Obstetric Care (EmOC), training of staff nurses, Lady Health Visitors (LHV) and Auxiliary Nurse Midwife (ANM) in skilled birth attendance, and training of medical officers and lab technicians in running blood storage units are some of the capacity building initiatives undertaken to improve access to EmOC.

However, various monitoring and evaluation reports of the last few years point to inadequate progress made in the above interventions.

Indicator	Barwani	Madhya Pradesh
% ANC registration against expected pregnancies	91	89
% Pregnant women given 100 IFA tablets against reported ANC registration	96	90
% Hb less than 11 gms/dl against reported ANC registration	16	21
% Severe anaemia treated against reported ANC registration	16	21
% Institutional deliveries against expected deliveries	66	65
% Caesarean section against institutional deliveries (public and private)	3	4
Duration of stay less than 48 hours as percentage of reported institutional deliveries	90	63
% Newborns weighed less than 2.5 kgs against reported institutional deliveries	25	17

- (a) The report of the 3rd Common Review Mission (CRM) of 2009 points out that only 83 CEmONC and 397 BEmONC centres are operational in the state.
- (b) The state's own analysis of HMIS data from April to November 2010 shows that JSY coverage for institutional deliveries is 91 per cent and for home deliveries is 5 per cent.
- (c) In an evaluation of the JSY conducted by UNFPA in 2008, only 38 per cent Medical Officers of Community Health Centres (CHCs) and Primary Health Centres (PHCs) reported that the Janani Express Scheme had been implemented in their work area.
- (d) An evaluation of the JSY in Barwani District by the National Health Systems Resource Centre (NHSRC) in 2010 pointed out that while the numbers of institutional deliveries has increased significantly over the last few years, several issues regarding quality of care remain. Shortage of human resources, problems with infrastructure including poor conditions and maintenance of facilities, poor hygienic conditions, lack of use of standard treatment guidelines, and irrational use of antibiotics were some of the factors contributing to poor quality of clinical care.

1.3 Investigation into Maternal Deaths in Barwani

There have been reports of a large number of maternal deaths in recent months from Barwani, Madhya Pradesh with many of the deaths taking place in the District Hospital (DH), Barwani. This issue was initially raised by the local grassroots organisation Jagrit Adivasi Dalit Sangathan (JADS) and SATHI Cehat, Pune through several protests. Initial reports by the Sangathan pointed to large-scale systemic factors as contributing to these deaths. In order to understand this issue better and to investigate these maternal deaths, a team of medical doctors and women's health activists undertook a visit to the area on behalf of Jan Swasthya Abhiyan, CommonHealth and Sama.¹⁰ The team members were: Dr. Subha Sri (Obstetrician Gynaecologist), Sarojini N (Health Activist and Nutritionist) and Renu Khanna (Health Systems Analyst).

1.4 Objectives

- a. To investigate the cause of death and systemic factors contributing to these deaths in a sample of the maternal deaths reported.
- b. To suggest systemic improvements to prevent such maternal deaths in future.

¹⁰ Jan Swasthya Abhiyan is the Indian chapter of the global People's Health Movement. JSA believes that health and equitable development need to be reestablished as priorities in local, national, and international policy-making, with Primary Health Care as a major strategy for achieving Right to Health and Health Care as basic human rights.

CommonHealth is a group of concerned individuals and organisations from across the country and sectors, who have come together to work towards ensuring that every pregnant woman has ready access to safe abortion services, skilled birth attendance and emergency obstetric care.

Sama is a Delhi based resource group working on issues of women's rights and health. Sama seeks to locate the concerns of women's health in the context of socio-historical, economic and political realities.

1.5 Methodology

- I. Site visits to homes, verbal autopsies conducted with family members of deceased women based on the existing WHO / Tamil Nadu government / National guidelines format for verbal autopsies in maternal deaths. The team interviewed two cases of denial of maternal health care, and also interacted with community members.
- II. Interactions were also held with members of JADS and SATHI team.
- III. Visits to health centres were undertaken to examine facilities available in terms of infrastructure / human resource, preparedness for handling obstetric emergencies and systemic constraints, and to review records and registers wherever possible.
 - DH in Barwani
 - PHC in Bokrata
 - CHC in Pati and
 - Maha Mrityunjay Hospital, Barwani
- IV. Interactions with health care providers at these sites to understand their perspectives and constraints.
 - a. ASHAs (Accredited Social Health Activists)
 - b. ANMs
 - c. Medical Officers (MOs) at the PHC in Bokrata
 - d. Staff members of the CHC in Pati block Medical Officer, LHVs
 - e. Staff at DH, Barwani - Civil Surgeon, Obstetricians, Surgeon, Anesthetist, Paediatrician, staff nurse and other staff in the Labour Room and in the Operation Theatre
 - f. Fact finding team appointed by the Madhya Pradesh government

Methods

The methods include: verbal autopsy, review of records and case sheets, and semi- structured interviews.

a. Verbal Autopsy

Six cases of maternal deaths over a period of eight months from April 1, 2010 to January 20, 2011 were analysed with special emphasis on parity, cause of death, time interval from admission to death, and antenatal care using verbal autopsy. The investigators had previous experience in the use of verbal autopsies for maternal deaths. The verbal autopsies involved interviewing persons who were present at the various stages of the woman's pregnancy and labour and had first hand knowledge about the events leading up to the death. Interviews with two women who were denied emergency obstetric care were also conducted.

b. Review of Records and Case Sheets

Bed Head Tickets, other medical records and Referral Slips enabled us to do an in-depth investigation of the causes and circumstances surrounding maternal deaths in health facilities. These records belonged to patients admitted in the DH, Barwani and were collected from the institution. These were reviewed with help from two senior obstetricians who are former professors of premier medical institutions in India, with special expertise in maternal health.

c. Semi-Structured Interviews and Group Meetings

Meetings were held with the official investigation team from Madhya Pradesh government, which included: Dr. V.A. Joshi (DD, HR), Dr. Archana Mishra (DD, Maternal Health), Dr. Pragya Tiwari (DD, Child Health), and Dr. Ajay Khare (DD, ASHA) at the DH. Meetings were also held with the family members of the women affected, members of JADS and SATHI.

1.6 Limitations

Despite giving us three different appointments, the District Chief Medical and Health Officer was unavailable, while the District Collector refused to meet us. Thus, their perspectives could not be included in the report.

Due to time constraints, we could not conduct verbal autopsies of all maternal deaths listed by the DH.

Chapter 2

Observations from the Field

2.1 Narratives based on Verbal Autopsies

A. A brief description of all the verbal autopsies of cases of maternal deaths and the major factors perceived as related to deaths is documented as follows.

1. Durga Bai, Age: 32 years, Husband's name: Jagan

Village: Semli, Block: Pati, District: Barwani

Scheduled Tribe

Durga Bai was married for 13 years and experienced six pregnancies, of which four children were alive while two had died. In her seventh pregnancy, Durga Bai had not been provided any antenatal care including tests (for BP, blood, weight, abdomen etc) or immunisation. During this and the prior pregnancies, she did not have any complications or problems. Eight days before her death, Durga Bai had come to her natal home in Ausada for a ceremony.

On 26th December 2010, Durga Bai experienced sudden and sharp pain in her back. She was taken to the Pati CHC at 2:00 PM, by which time her condition was quite serious. Upon examination, the nurse at the Pati CHC found that Durga Bai was ready for delivery. Durga Bai was made to lie on a bed, and was given an injection, purchased by her family for Rs 20. Soon both the legs and one hand of the baby were out. However, the baby's head was stuck inside, and the nurse sent for the doctor. Dr. C.S. Rosaliya saw the baby and asked Durga Bai to go to Barwani.

After an hour at the Pati CHC, Durga Bai's relatives took her to the Barwani DH, which was 22 kms away. The ambulance reached the DH at 4:00 PM. Durga Bai was admitted after her referral letter was checked, and was administered a saline bottle by the nurse (the saline was purchased by Durga Bai's family for Rs. 400). The nurse tried to force the baby out by pushing (*Dhakka de kar*). There was continuous bleeding during this time. Though Durga Bai required blood, the hospital did not make any provision for it and instead referred the family to a donor, who charged Rs. 1600 for one unit of blood. Since they had no money on them, Durga Bai's mother pawned off her traditional silver necklace for Rs. 1000. According to her, the necklace weighed half a kilogram.

After receiving only a couple of drops of blood, Durga Bai passed away. The doctor, who was called by the nurse, arrived only after her death.

Antenatal Care

During her pregnancy, an ANM had visited Durga Bai. However, the ANM did not have Tetanus Toxoid injections with her, and instead of returning to administer the shots, she asked Durga Bai to come to the Pati CHC later on. No Folic Acid or Iron supplements were given.

Observations from the interaction with Vyapari Bai, mother of Durga Bai

Vyapari Bai, Durga Bai's mother, was very traumatised and broke down repeatedly while narrating her daughter's story. She expressed deep guilt at not being able to save her daughter. It appears that the child had hydrocephalus, as Vyapari Bai described him as having a huge head.

As the family is extremely impoverished, Vyapari Bai has not yet been able to recover the silver necklace she pawned off, and continues to be in debt.

Observations from the case record at the District Hospital

Duration of stay: 3 hours, 55 minutes

Course in hospital:

- Referred from CHC, Pati at 2:30 PM, 26/12/2010 with a diagnosis of “breech presentation with lock head - whole foetus comes out but head not comes out and there is no pains”. BP “normal”
- At admission in DH, Barwani at 3:50 PM - Pallor excessive, P/A- Uterus 24 weeks size, PV - fully dilated, aftercoming head obstructed. Given IV fluids (Ringer’s Lactate) and antibiotics. Record of no male relatives being available with woman, therefore to arrange for free blood. Investigations - Hb - 2.0 gms/dl, Blood group O Pos.
- Record of baby out at 5:35 PM, Placenta out 5:40 PM, Weight 2.8 kg, IUD
- At 6:30 PM, patient C/O excessive bleeding PV. On examination Pallor +++, pulse feeble, BP not recordable, P/A Uterus well contracted, PV No active bleeding at present. Given Oxygen, Inj- Hemacel and RL with 2 amp oxytocin, Vaginal packing done. Record that nobody was with her, only one lady.
- At 7 PM - severe anaemia - request for one unit blood urgently, IV Dopamine started.
- At 7:15 PM - general condition same, catheterisation done.
- At 7:30 PM - no respiration, no heart sounds, one unit blood issued and started.
- At 7:45 PM - declared dead.

Remarks

- a) This was a breech delivery with difficulty in delivery of aftercoming head since at least 2.30 PM. The baby was delivered only 1 hour 45 min after admission in the DH. There is no record of any definitive attempts to deliver the head as is standard practice in such cases, for example, with the use of forceps. The verbal autopsy revealed that the nurse tried to force the baby out by pushing heavily on the abdomen (*Dhakka de kar*) - this in itself could be extremely dangerous. From the verbal autopsy, it also seemed that the baby might have had a hydrocephalic head - this is not documented in the case sheet - if it were actually so, then standard procedures like draining the fluid from the head to facilitate delivery do not seem to have been followed.

- b) The woman was severely anaemic and also seems to have had postpartum haemorrhage (PPH). No attempts were made to treat the anaemia aggressively - the case record says that male relatives were not present to justify this - Blood was started only after 3 hours 40 min of admission and 1 hour 55 min after delivery.
- c) PPH was detected only one hour after admission - in a woman with such severe anaemia, it would be standard practice to watch for PPH closely. Also, there was no documentation of Active Management of Third Stage of Labour being done to prevent PPH.

Factors	Causes	Outcomes
Direct cause of death	Haemorrhage	Postpartum
Contributing factors	Severe anaemia Prolonged second stage and difficult delivery	Hb 2 gms/dl Baby was delivered by abdominal pressure.
Health System	Failure of Services	No antenatal care PHC level (a) No detection or treatment of severe anaemia. CHC level <ul style="list-style-type: none"> Poor quality of care – no anticipation / preparation for difficult delivery. No skill to handle obstetric complication. No human resource or infrastructure despite being a CEmONC centre (no gynaecologist, no surgeon, no anesthetist, no blood bank). Inappropriate use of injections – probably oxytocin given for augmentation of labour. DH Level <ul style="list-style-type: none"> Delay in service provision and decision making for obstetric complication. Standard protocols not followed for delivery or third stage management. Provision of blood for severe anaemia and PPH not done – family had to contact a professional donor. Postpartum monitoring of critical patient inadequate.
Social impact		Trauma and indebtedness.
Right to Life		Violation of Right to Life.

2. Vyapari Bai, Age: 22 years

Village: Ban, Block: Pati

District: Barwani

Scheduled Tribe

On 26th November, 2010, Vyapari Bai, who was eight months pregnant at the time, complained of anxiety (*'ghabrahat'*) and convulsion (*'jhatka'*) during the night. At 7:00 AM the next morning, she was carried in a cloth sling (*'jholi'*) by her relatives and taken to the Piparkund village, where a Janani Express ambulance had been called for. Vyapari Bai went in the ambulance to Bokrata PHC (reached at 9:00 AM), where without any examination, Dr. Arya asked her to be taken to Barwani DH.

Vyapari Bai's relatives took her to the Pati CHC, 20 kms away (reached at 10:00 AM). However, the nurse at the CHC said that her cervix was not dilated. Following an examination, Dr. C.S. Rosaliya asked Vyapari Bai's relatives to take her to the Barwani DH. They arrived at the DH by 1:00 PM in the Janani Express. Till this time, Vyapari Bai had not received any injection, tablet or other medical care.

Upon admission in the labour ward, Vyapari Bai was examined by the nurse, who called for the doctor. Dr. C.K. Gupta checked her BP and abdomen, and administered saline drip and two injections and said

Factors	Causes	Outcomes
Direct cause of death	Eclampsia	Eclampsia not treated adequately according to standard treatment protocols.
Contributing factors	All three phases of delay	<ul style="list-style-type: none"> • First delay due to inability to recognise danger sign (convulsion) and lack of transport in the night. • Second delay due to multiple referrals with no initial management of obstetric complication at PHC/CHC. • Third delay – No definitive management in spite of almost 40 hours admission in the district hospital.
Health System	Failure of services	<p>PHC level No antenatal care, including for BP or anaemia prevention / management.</p> <p>CHC level No Emergency Obstetric Care or initial management of eclampsia despite CHC being a CEmONC centre.</p> <p>DH level No standard treatment protocol followed.</p> <ul style="list-style-type: none"> • Adequate dose of anti hypertensives or Magnesium Sulphate not given. • Continuous monitoring of critical patient lacking. • No attempt at delivery by induction or caesarean. • No emergency services despite DH being a CEmONC centre. • Gross neglect and apathy, despite presence of infrastructure and staff. • Inappropriate investigations causing delay, for e.g., ultrasound in a private centre.
	Inadequate Training of ASHA	Inability to recognise danger signs.
	No accountability mechanisms	<ul style="list-style-type: none"> • No maternal death review • No grievance redressal
Social Systems	No road / transport facilities in remote hamlets	Leading to first and second phase delays.
Human Rights		Violation of Right to Life.

that they would have to wait for several hours before any further intervention could be made. Later when her condition did not improve, they put a catheter in her and gave her two tablets (morning and evening) under the tongue. Vyapari Bai kept screaming in pain through the night, and was given two injections by the nurse.

On 28th November, Vyapari Bai was sent for sonography in an auto-rickshaw to a private centre, where she spent Rs. 300. The report showed the presence of a live foetus. Following this, Dr. Rashmi Vaskale checked Vyapari Bai's Blood Pressure and the nurse administered two injections. The nurse also wrote some medicines and a 12-ampoule injection on the Deendayal card. Vyapari Bai remained in severe pain through the night; at 3:00 AM on 29th November, the nurse held her abdomen, and Vyapari Bai suddenly defecated. Her mother-in-law and others went twice to Dr. Rashmi Vaskale's house, requesting her to come and examine Vyapari Bai, whose condition was deteriorating. Despite repeated requests by the family, the doctor did not attend to the patient. Eventually, at 5:00 AM, 40 hours after being admitted, Vyapari Bai passed away.

Observations from our interactions

Both the mother and mother-in-law of Vyapari Bai are trained health workers, presently working as ASHAs as part of the NRHM. However, even their pleas for proper treatment did not seem to have been heeded. The case sheet carries a statement by Duna Bai (Vyapari Bai's mother-in-law)

recorded at 11:00 PM on 28th night (34 hours after admission), that the family has been advised to take Vyapari Bai to Indore, and that the family takes full responsibility for not doing so.

Observations from the case record

Duration of stay in District Hospital: 39 hours, 40 min

Course in hospital:

- Referred from CHC, Pati with a BP record of 140/100 mm Hg.
- Admitted in DH on 27/11/2010 at 1:30 PM with diagnosis of eclampsia. At admission, BP -160/100 mm Hg, uterine height - 36 weeks, Foetal heart recording not legible, PV finding not legible. Started on anti hypertensives (Methyldopa, Nifedipine) given 10per cent glucose and Inj MgSO4 14 gms loading dose. Investigations - Haemoglobin 8 gms/dl, Blood group A negative.
- On 28/11/2010, BP - 160/110 mm Hg, given Nifedipine sublingually, 10per cent glucose and sent outside for ultrasound. Ultrasound showed 32 weeks pregnancy with a viable foetus with expected weight of 2.1 kg.
- At 11 PM on 28/11/2010, C/O breathlessness, BP 160/110 mm Hg, Chest clear. Given intranasal oxygen and 10per cent dextrose IV, referred to Maharaja Yashwantrao Hospital (MYH), Indore. Consent taken from relatives that they want to continue treatment in DH, Barwani. Also noted that attendants of patient refused oxygen and IV fluids.
- At 5:10 AM, 29/11/2010 - declared dead.

Remarks

- a) Standard management of eclampsia includes control of hypertension through use of anti hypertensives, control of convulsions through use of Inj MgSO4 and delivery of the baby as soon as possible.
- b) In this case, while anti hypertensive medications were given, it is not clear from the case records whether adequate doses were administered - BP continued to remain high throughout the hospital stay.
- c) Similarly, while Inj MgSO4 loading dose is mentioned, it is not clear from the case record whether maintenance doses were given at all. (During the verbal autopsy, Vyapari Bai's mother said no further injections in a large syringe were given after the ones at admission).
- d) No attempts at delivery either by induction of labour or caesarean section as is standard practice in management of eclampsia were attempted during the whole duration of hospital stay of almost 40 hours.
- e) Vyapari Bai's relatives mentioned that she continued to have convulsions in the hospital - this is however not recorded in the case records. In spite of her poor general condition, she was sent outside in a private vehicle for an ultrasound which had no bearing on management.
- f) Since she was carrying a healthy foetus, this was a case of 2 preventable deaths.

3. **Name: Nani Bai, Age: 22 years (25 in official documentation), Husband's name: Amar Singh**
Village: Sajwani, Block: Barwani, District: Barwani
Scheduled Tribe

22 year-old Nani Bai, who was pregnant for the third time, had a home delivery on 31st October, 2010. The two earlier births had taken place in the DH Barwani, but the third was a pre-term delivery. Since she experienced sudden labour pain, the family did not have the time to take her to the DH. The child was still born, with delivery of the placenta. Post-delivery, Nani Bai was extremely restless and anxious (*ghabrahat*), so her family members called for a private informal provider, who administered an injection.

By this time, she was having convulsions (*kaanp rahi thi* and *jhatka*). She was admitted in the DH on 1st November, 2010, at 10:00 AM. Nani Bai's convulsions continued. In the DH, the family was told that Nani Bai could not be treated there and should be taken to Indore. However, they could not afford to do so, and were left with no option but to continue treatment at the Barwani DH.

In the DH, the nurse checked Nani Bai's BP and gave her two injections. She was put on saline drip, and blood transfusion of one unit of blood was carried out. Nani Bai's husband, Amar Singh, had to donate blood in exchange for his wife's requirement. She was given two injections intramuscularly. When the doctor finally came and checked, between 8:30 PM and 9:00 PM, Nani Bai had already breathed her last.

Observations from our interactions

For the previous two deliveries, Amar Singh received financial incentive of Rs. 1400 each, through ASHA. Nani Bai had not received any Antenatal Care, Iron or Folic Acid supplements. Though there was an Anganwadi in the village, the women were away on work (wage labour) most of the time and were unable to go there.

Observations from the case records at the District Hospital

Duration of stay: 7 hours, 50 min

Course in hospital:

- Admitted with H/O home delivery in the morning that day (1 November 2010), had convulsions and became unconscious. At admission, general condition was very poor. Unconscious, gasping, pulse not palpable, BP not recordable. P/A - Uterus well contracted, Bleeding PV WNL. Started on IV crystalloids and colloids, Inj Hydrocortisone and Dexamethasone, and Inj Cefotaxime. Was referred to higher centre, but relatives signed that they are unable to do so. One unit blood given at 3.45 PM.
- Investigations - Hb 11.2 gms/dl, B Pos, Blood sugar - 84 mgs/dl, Blood urea 28 mgs/dl, S Bilirubin total 0.4 mgs/dl, Widal negative, Malarial parasite negative.
- Throughout duration of hospital stay, pulse and BP remained not recordable and patient continued to be unconscious and gasping. Inj Chloroquine was started at 5:30 PM.
- At 9 PM, she was declared dead.

Remarks

a) This was a case of home delivery with H/O convulsions postnatally. Nani Bai was admitted in shock. The management in such a scenario would be to manage the shock and also to definitively manage the convulsions. Any convulsions during pregnancy or postpartum period are taken and treated as eclampsia unless proven otherwise. In this particular case, no management for eclampsia was done.

b) Management of shock also seems to have been inadequate. During the whole duration of hospital stay of almost 8 hours, Nani Bai never recovered from shock. How much fluid was given is not clear from the case sheet - only one pint each of RL and Hemaccel and one unit blood are evident from the orders.

c) There is a discrepancy in the timings mentioned by the husband, Amar Singh, in his narrative, and the hospital records. The latter gives the time of admission as 1:10 PM. The time of admission to the DH has been overwritten on the case sheet as 1:10 PM. The original writing is not clear.

d) There is documentation of Nani Bai's father-in-law, Nahar Singh's 'consent', taking full responsibility for keeping his daughter-in-law at the Barwani DH, despite a referral for Indore.

Factors	Causes	Outcomes
Direct cause	Probable eclampsia	The direct cause is not clear. Postnatally, Nani Bai developed convulsions and was admitted in shock.
Health System	Service failure	<p>PHC level</p> <ul style="list-style-type: none"> No antenatal care was provided. No safe intranatal or postnatal care provided. <p>DH level</p> <ul style="list-style-type: none"> Unnecessary blood transfusion. Suggestion of referral to Indore unnecessary. <p>ICDS</p> <p>Nutritional interventions not accessible.</p>
Social System	Poverty	Could not afford to go to Indore as referred.
Human Rights		Violation of Right to Life.

4. Name: Pinu Bai, Age: 20 years, Husband's name: Vijay

Village: Borlai, Block: Barwani, District: Barwani

Scheduled Tribe

Pinu Bai was in her first pregnancy, one year after marriage. During the pregnancy, she had once developed fever and had received treatment for it. This time, she developed pain in the hands, feet and abdomen. Her nails, eyes and hands became yellow. At this point, Pinu Bai was nine months pregnant. She went to see the doctor in a private vehicle, which was hired by her relatives, and was admitted in Barwani DH on 8th November at 3:45 PM. Her blood and urine tests revealed that she had malaria. She was started on saline drip, and was given injection and medication. The medication was purchased by her family for Rs. 5000. Dagadi Bai, Pinu Bai's mother-in-law, said that as this was Pinu Bai's first time in a hospital, she did not understand much. However, the hospital staff assured her family on the first day that she would be okay. Later, they referred Pinu Bai to Indore. However, as the family did not have any money, they could not take her to Indore.

Pinu Bai remained at the DH for two days and two nights. While the nurses (as well as 2-3 other women from the village) were around to care for Pinu Bai, the doctor came only once a day. On 9th November, at 9:30 AM, blood transfusion was done. In the morning of 10th November 2010, Pinu Bai complained that she was feeling anxious and tense (*ghabrahat*). She said, "*Now I will not survive (Ab main nahin bachoongi)*". The child was delivered without much bleeding. It was a case of Intra-Uterine Death (IUD) of the foetus. At 4:00 AM, Pinu Bai passed away.

While the family did receive some financial incentive, they took a loan of Rs. 7000 from the village landlord, which now has to be returned with interest.

Observations from our interactions

Pinu Bai had no history of hypertension, malaria or jaundice. She received a TT injection from the local ANM, who specified that there had been no problems with Pinu Bai's pregnancy till the ninth month.

Observations from the case records at the District Hospital

Duration of stay: 42 hours, 45 min

Course in hospital:

- Was seen in DH OPD on 8/11/2010 - Primigravida, 9 months pregnancy, H/O fever, O/E Icterus ++, Uterus 36 weeks size, Advised blood and urine investigations and ultrasound abdomen.
- Investigations - Hb - 9.3 gms/dl, Blood group AB pos, Serum bilirubin total 20.5 mg/dl, Malarial parasite - Pl V R seen, Widal neg, Aus antigen neg, Urine bile salt and bile pigment pos. Ultrasound - 36 weeks pregnancy with viable foetus and oligohydramnios (AFI<6 cm).
- Advised admission based on the investigations - started on quinine IV. On 10/11/2010 - Normal delivery at 9:30 AM, Placenta at 9:35 AM, IUD, Female, 2 kg, No PPH.
- On 10/11/2010 10 AM - general condition poor, Icterus +++, Pulse 90/min, BP 90/60. Started on IV fluids, Inj dexamethasone. Asked for urgent medical consultation.
- At 10:30 AM - declared dead.

Remarks:

- Pinu Bai was very severely jaundiced by the time she reached the DH - this by itself made her prognosis very poor.
- The verbal autopsy revealed that she had received some antenatal care - but this was restricted to receiving tetanus toxoid injections. She had also had fever earlier in the pregnancy. In a malaria high prevalence area, malaria had not been identified earlier, which could have changed the course of events.

Factors	Causes	Outcomes
Direct cause of death	Malaria	Pregnancy worsened the outcome further.
Health System	Service failure	No appropriate antenatal care - earlier episodes of fever not picked up.
	Malaria prevention	Four of the 26 maternal deaths were directly caused by malaria.
Social System	Poverty	Could not afford to go to Indore as referred. Indebtedness.
Human Rights		Violation of Right of Life.

5. **Name: Baisi Bai, Husband's Name: Mayaram**

Village: Sawriyapani, Block: Pati, District: Barwani

Scheduled Tribe

Baisi Bai was in her sixth pregnancy. Like her earlier five pregnancies from which she had four daughters and one son, this pregnancy too was free of complications and problems. Baisi Bai's labour pains began at home when her term was up. Rewa Bai from the neighbouring village, delivered the baby on the evening of 18th December 2010. However, the placenta did not come out after the delivery. Baisi Bai's husband walked half a kilometer and called the ASHA, Gomti Bai, who in turn, called the Janani Express Helpline / Call centre for a vehicle at 7:00 PM from the Sarpanch's house. Baisi Bai's relatives carried her in a cloth sling (*jholi*) for half a kilometer till the main road, from where the Janani Express picked them up at 9:00 PM. The Janani Express reached Pati CHC at 11:00 PM. Upon admission, the nurse administered an injection to Baisi Bai. This injection was bought by Baisi Bai's family. The placenta was removed. Dr. C.S. Rosaliya was sent for, who examined Baisi Bai and assured her family that there was no problem, and that everything would be alright. However, on 19th December 2010, at 4:50 AM Baisi Bai's condition suddenly deteriorated and she passed away.

Factors	Causes	Outcomes
Direct cause of death	Haemorrhage	Retained placenta leading to atonic postpartum haemorrhage.
Contributing factor	Delay	Second phase delay due to need to arrange for transport and late arrival of Janani Express ambulance.
Health System	Service failure	<p>PHC level</p> <ul style="list-style-type: none"> • No antenatal care. <p>CHC level</p> <ul style="list-style-type: none"> • Quality of care was poor; while retained placenta was removed, adequate monitoring for postpartum haemorrhage does not seem to have been done. • Emergency drugs were not provided by the public health facility. • Reasons for death were not communicated to the family. <p>ASHA</p> <ul style="list-style-type: none"> • ASHA did not accompany the woman to the hospital in spite of her having a major obstetric complication.
Human Rights		Violation of Right to Life.

Observations from our interactions

- The family received Rs. 1400 as JSY even though Baisi Bai died. The child also died after eight days.
- The ASHA worker, Gomti Bai, called for the Janani Express. Though she wanted to accompany the vehicle and tried to stop it after it had picked up Baisi Bai, the Janani Express did not stop for her.
- In the course of the pregnancy, Baisi Bai had not undergone any immunisation or check-ups (weight, BP, blood, abdomen).
- The Janani Express seems to have reached two hours after being called, even though the distance could have been covered in 15 minutes.
- Case record was not available for review.

6. Name: Garli Bai, Age: 32 years

Husband's name: Dhaniya Bhil

Village: Bondwada, Block: Misarpur, District: Dhar

This was Garli Bai's third pregnancy. Her first child died immediately after delivery. Her second child died in the DH (stillbirth). In this pregnancy, Garli Bai did not receive any antenatal care - only a tetanus toxoid injection was administered by the Multi Purpose Worker (MPW). On the night of 16th July, 2010, Garli Bai started getting pains. She was taken to Narmadanagar PHC around 9.30 PM. This PHC is around 10 kms from her village. She was taken to the PHC in a private hired vehicle, for which her relatives spent Rs. 500. However, there was no doctor at the PHC. Over the phone, the doctor advised her relatives to take her to the Barwani DH. The relatives say that the baby's hand had come out when she was at the PHC.

Following this, Garli Bai was taken to Barwani DH, which she reached at around 10:00 PM. Dr. Choyal and the staff nurse on duty started the treatment. She was given saline and some medicines, which the relatives had to purchase from outside the DH for Rs. 500 despite Garli Bai being a Deendayal card holder. The doctor asked the relatives to arrange for blood - they arranged one unit, which was given to Garli Bai. They could not arrange more units as her blood group, B negative, was not available in the blood bank. At around 3:00 AM on 17th July 2010, Dr. Choyal advised her relatives to take her immediately to Indore. For this, the relatives were asked to hire a private vehicle and were told that an ambulance could not be provided. However, Garli Bai's relatives could not afford the cost of the vehicle, and took her back to the village.

By around 8:00 AM the next morning (18th July 2010), Garli Bai's condition further deteriorated. Once again, she was taken by her relatives to Narmadanagar PHC in a school van. The doctor told them that her condition was serious, and that she should be taken to Barwani again. In view of their experience the previous day, the relatives were reluctant to do this, but finally took Garli Bai to Barwani DH as they had no choice.

At Barwani, however, Dr. Choyal refused to see Garli Bai as he had already referred her to Indore the previous night. For over one hour, the relatives pleaded with the doctor and other staff to treat her, but to no avail. Garli Bai remained in the vehicle during this time. At around 1:30 PM, she breathed her last in the vehicle itself. Her body was taken back home in a private vehicle.

Observations from the case record at the District Hospital

Duration of stay in District Hospital: 3 hours 10 min (till referral)

Course in hospital:

- Admitted on 16/07/2010 at 11:50 PM with diagnosis of hand prolapse with severe anaemia and previous lower segment caesarean section (LSCS). At admission - Pallor +++, pedal edema ++, BP 120/80. P/A Uterus - 36 weeks, Transverse lie, No fetal heart sounds, PVOs fully dilated, hand prolapse, blood stained urine in catheter. Started on IV fluids, planned to prepare for LSCS.
- Investigations - Hb 10 gms/dl, B Negative.
- One unit blood issued on 17/7/2010 at 1.45 AM and started.

- At 2:40 AM - general condition was not good, Pulse 100/min, BP 120/80. Referred to Indore Medical College Hospital as blood (B negative) was not available in the blood bank.

Remarks

- This case is recorded as referral and not as a maternal death in the list provided by the District officials.
- Garli Bai was a case of previous LSCS who had been admitted with a transverse lie with a prolapsed hand. The management in such a scenario would be to immediately deliver the baby by caesarean section as otherwise the uterus would rupture due to obstructed labour - the danger was even more in this particular case due to the previous scar in the uterus.
- While an initial plan for caesarean section was made at admission, subsequently lack of availability of the blood of the requisite blood group was cited as the reason for referral 3 hours later. Given that the referral centre was 4 hours away by road, and that the DH is a fully functional FRU, this referral is totally inappropriate. Why the ambulance was not made available is not clear. Even so, no responsibility was taken to ensure that Garli Bai reached the next referral centre safely. The subsequent course of events as understood from the verbal autopsy are tragic.

Factors	Causes	Outcomes
Direct cause of death	Obstructed labour with probable ruptured uterus	Transverse lie with hand prolapse without operative intervention for several hours.
Contributing factors	Second and third phase delays	<ul style="list-style-type: none"> Second phase delay due to multiple referrals back and forth without appropriate management. Third phase delay in the district hospital where a caesarean section as per standard protocol was not done.
	Previous caesarean	Increased risk of ruptured uterus.
Health System	Failure of services	<p>PHC level</p> <ul style="list-style-type: none"> No antenatal care. No birth preparedness plan even with a previous caesarean. Staff absent; no emergency medical care. <p>DH level</p> <ul style="list-style-type: none"> No Emergency Obstetric Care despite DH being a fully equipped CEmONC Centre. Medicines not provided free of cost although patient belonged to a BPL household. Blood Bank ill-equipped (did not have B negative blood). Inappropriate referral - Given that the referral centre was 4 hours away by road, and the the DH is a fully functional FRU, this caesarean should have been done immediately at the DH. Ambulance to Indore was not provided. Gross negligence and apathy by hospital staff and refusal to attend to patient.
	Lack of accountability	<ul style="list-style-type: none"> The DH did not perform the basic functions of a CEmONC centre in spite of being fully equipped to do so. No accountability during referral - nothing done to ensure that the patient reached the higher facility safely. No accountability to patient even after she came back several hours later in critical state. No reporting of maternal death.
Social System	Poverty	Inability to hire private vehicle for transport to higher centre.
Human Rights		Violation of Right to Life.

B. The following are the interviews with women who were denied obstetric care:

1. Name: Baniya Bai, Age: 20 years, Husband's name: Idiya

Village: Sukhpuri, Block: Barwani, District: Barwani

Scheduled Tribe

On the night of 11th November 2008, Baniya Bai was taken to the Menimata PHC for delivery by her father-in-law, Dalsingh. She had completed nine months of pregnancy. They made the journey of 15 kilometres, on a bullock cart because no other transport was available. After admitting and taking a cursory look at her, the compounder, V.K. Chauhan, and nurse, Nirmala, went home.

The next day, 12th November 2008, in the morning, Baniya Bai was asked by the compounder and the nurse to leave the hospital. Her family was asked for Rs. 100, which they did not have. The father-in-law immediately went to get the money from their village. Despite attempts to re-admit Baniya Bai in the hospital, the compounder flatly refused saying that they could not manage the delivery as Baniya Bai was anaemic, so she would have to go to Barwani. Though the Janani Express was called for, the driver of the vehicle, said that he needed permission from the Block Medical Officer (BMO), and then said that Baniya Bai should be brought to Silawad, after which she would be taken to Barwani in the Janani Express, because it was too costly to drive her from Menimata itself. Baniya Bai's relatives tried to get the Menimata hospital compounder, nurse and staff to call for an ambulance, but were unsuccessful.

The family was told to make its own arrangements to go to Barwani. Baniya Bai managed to crawl out of the hospital's labour room, on to the road outside the PHC, where she lay down. She was in severe pain around 11:00 AM, and eventually, at 11:30 AM, Baniya Bai's mother-in-law, Suvali Bai, went looking for a Dai in the marketplace, which was unusually crowded on the occasion of the village's weekly market. There, she found the Dai, Lambai Nana, who had come to collect her wages. After hearing about Baniya Bai's situation, Lambai agreed to assist her, and at around 12:00 PM, conducted a normal delivery on the road outside the hospital. The father-in-law gave his *dhoti* (loin cloth) to provide cover for Baniya Bai during delivery.

Following this incident, a crowd gathered outside the hospital. JADS activist, Madhuri, who was passing by, inquired about what was happening. She then called up the Silawad CHC, the Silawad Police Station as well as health officials from Barwani. Upon being informed, senior officials from the health department ordered for a vehicle to be sent

Factors	Causes	Outcomes
Health System	Service failure	<ul style="list-style-type: none"> No attempt by ASHA to contact pregnant woman in the antenatal period. No skilled birth attendant (SBA) available in the PHC to conduct an uncomplicated normal delivery.
	Corruption	The family was asked for a bribe of Rs. 100.
	Negligence and apathy	Neither Janani Express nor ambulance was arranged from the PHC. The child was delivered on the roadside outside the PHC, and had it not been for action by JADS activists, the mother and baby would not have received the necessary postnatal care.
Social System	Lack of infrastructure	No appropriate mode of transport to the Menimata PHC was available.
Human Rights		Violation of the Right to Health.

immediately to the Menimata PHC. Finally, Baniya Bai's ordeal ended and she and her child were taken to the Silawad hospital for admission.

No doctor was posted at the PHC for a long time. Baniya Bai and her family said they could not remember when there had last been a regular doctor at the PHC, but there had been none for the past many years. The compounder was briefly suspended after repeated demands for action from JADS. But he was soon reinstated.

Observations from our interactions

- Baniya Bai who has also had another baby, had not heard about ASHA at all.
- The family received Rs. 1400 for the delivery.

2. Name: Balta Bai, Age: 20 years, Husband's name: Gulsingh

Village: Ubadgad, Block: Pati, District: Barwani

Schedule Tribe

At 4:00 AM on 6th June 2010, Balta Bai experienced sudden labour pains. She was taken by her family to the Pati CHC in a bus from Chauki bus stand; she was carried in a cloth sling (*jhola*). They reached the hospital by 12:00 noon, but found no doctor as it was a Sunday. A nurse at the CHC did a check up and referred her to Barwani in an ambulance.

At the Barwani DH, she was in too much pain to even sit, and was made to lie on a table. As Balta Bai was screaming in pain, the nurse hit her. Without any examination, she was given an injection and the family was asked to take her to either Indore or Ashagram (a Private Trust hospital in Barwani). When the family expressed helplessness about being able to reach Indore (which is 150 kms away) as they did not have any money at hand and did not know how to get there, and also pointed out Balta Bai's deteriorating condition, the nurse told the father-in-law, "*Take her to Ashagram, otherwise we will lodge a complaint against you.*"

Balta Bai's family hired a private vehicle (Maruti van), and reached the Ashagram Trust Hospital around 7:00 PM. They were referred to Dr. Rohita Aggarwal, who checked Balta Bai without even taking her out of the van. She announced that the child was dead, and would need to be taken out immediately. She said Rs. 20000 would be required for the operation. As the family could not afford that amount, they negotiated and finally settled on Rs. 10000. The operation was done, after which Balta Bai was kept in the hospital for eight days. On 14th June 2010, she was discharged and brought home in a bus.

That night, Balta Bai's stomach was swollen, and she complained of abdominal distension and pain. As she was not in a position to walk, she was carried in a cloth sling (*jhola*) to a private doctor in Chauki. The doctor took out the accumulated urine through a catheter and charged Rs. 200. Her relatives then took Balta Bai to the Barwani DH by bus. They did not go to Ashagram as they would have been charged for treatment there.

At DH Barwani, Dr. Choyal attended to Balta Bai. She was kept in the maternity hospital for one night, after which she was transferred to the general ward on a stretcher. She stayed there for four nights. According to Balta Bai's mother-in-law, the nurses in the maternity ward remarked, "*Oh, you have come again!*" and

called her derogatory names like 'whore' (*rand*). They even threw hot water on her stomach. The family spent Rs. 100-150 on medicines, bought from outside the hospital. Eventually, after four days of treatment, the doctor declared that Balta Bai had become a paraplegic and would have to be taken to Indore for further treatment.

She was then admitted in Indore Hospital. She was diagnosed as suffering from Urinary Tract Infection and Cystitis. Her sonography was done twice, she was given IV drip and a catheter was put in her for two days. After being discharged from Indore, Balta Bai's family brought her home, once again by bus.

At the time of the interview, Balta Bai was six months pregnant. She was receiving no antenatal care.

Observations from our interactions

- Balta Bai's family is below the poverty line and does not own even a small piece of land. There are a total of eight members in the family, all of whom, including women, earn their livelihood by working in the fields. Balta Bai was continuing to work when interviewed, in the sixth month of her pregnancy.
- At the Barwani DH, consent was taken from Balta Bai's family members for continuing to keep her at the hospital, rather than taking her to Indore. The family had taken full responsibility for any deterioration in her condition (since they had been advised to take her to Indore but had not done so).
- Due to denial of care at the DH, this landless adivasi family had to spend upto Rs. 20,000 on treatment (Rs. 7000 to Rs. 10000 for medicines, about Rs. 5000 on the Indore trip and Rs. 2000 to 3000 on other expenses like food, transport, etc.). They raised this money from moneylenders at an interest rate of 10 per cent per month. Despite a monthly earning of merely Rs. 500 to Rs. 1000, they were to pay an amount of Rs. 2500 per month as interest on the loan. Since they were not able to pay the monthly interest, compound interest, i.e. interest on the interest was piling up, and they would probably never be able to get out of the indebtedness. They had already sold their only assets: a pair of bullocks.

Observations from case records

- Referred from CHC, Pati on 6/6/2010, time not mentioned as full term, not cooperative.
- At admission in DH, Barwani at 6/6/2010 at 3:10 PM – Primi with H/O 9 months amenorrhea with pains. On examination, BP 120/80, P/A Uterus 34 weeks size, FHS?, PV Os fully dilated. Not cooperative. Referred to MYH, Indore. Investigations – Hb 10 gms/dl, A POS.
- Admitted in Ashagram Hospital at 9 PM on 6/6/2010 with a diagnosis of obstructed labour, and pre eclampsia with IUD. 'Consent' was taken from her family members, claiming full responsibility for Balta Bai and absolving the doctor of any consequences. Underwent craniotomy and vaginal delivery at 9:30 PM, Fresh stillborn, female, 2.5 kg. On antibiotics and continuous bladder drainage till 12/6/2010. BP recordings consistently high in postnatal period also. Discharged on 14/6/2010.
- Seen in DH, Barwani OPD on 15/6/2010 and admitted with a diagnosis of Acute Urinary Retention. Transferred to Female Medical Ward on 17/6/2010 with a diagnosis of paraplegia. Consent was taken from Balta Bai's family members for continuing to keep her at that hospital, rather than taking her to Indore. Doctors' orders not legible, however no antibiotics seem to have been given.

No urine exam reports available. Referred on 21/6/2010 at 9:30 PM to MYH Indore with a diagnosis of abortion with paraplegia with urinary retention.

- Admitted under Department of Medicine in MYH Indore on 22/6/2010 and discharged on 30/6/2010. Final diagnosis: UTI, cystitis. On examination, neurological examination normal, Hb 10 gms/dl, Urine microscopy - 60-70 pus cell/hpf. Ultrasound abdomen (28/6/2010) - Bilateral pelvic/ureteric system distension with distended urinary bladder suggestive of bladder outlet obstruction? Cystitis.

Factors	Causes	Outcomes
Health System	Service delivery failure	<p>No antenatal care.</p> <p>CHC level</p> <ul style="list-style-type: none"> Absence of doctor. Inability to diagnose pre eclampsia and obstructed labour. <p>DH level</p> <ul style="list-style-type: none"> Blatant disrespect and abuse towards woman in labour, including violent behaviour by staff. No provision of ambulance or Janani Express. Evasion of responsibility. No provision of free medication. Incorrect diagnosis and referral. <p>Ashagram Trust Hospital</p> <ul style="list-style-type: none"> No sensitivity, respect towards patient and instead, fixing a 'price' for treatment. Inadequate medical care, leading to cystitis in-patient and indebtedness of family.
Human Rights		Human rights violation at all levels, including violation of Right to Health.

Review

- Balta Bai had obstructed labour - to refer her at full dilatation to a facility 4 hours away is inappropriate. By the time she reached there she could have had a rupture of the uterus. To justify this by calling her 'not cooperative' is an attempt to transfer blame onto the woman.
- Balta Bai could easily have been operated on for obstructed labour and treated for pre eclampsia at the DH itself. However, she was unnecessarily kept there for 4 hours without any treatment and then asked to leave while in a critical condition.
- The quality of care in the DH was poor even during the postnatal admission. A diagnosis of paraplegia was made – however, when referred to Indore, the final diagnosis was Urinary Tract Infection.

2.2 Observations from Facility Visits

SIGNIFICANT FINDINGS FROM VERBAL AUTOPSIES

- There was very poor antenatal care coverage.
- Peripheral facilities (subcentres, PHCs, CHCs) seemed to be non functional.
- Severe degrees of anaemia were highly prevalent.
- Quality of care at facilities was very poor - standard protocols for treating obstetric emergencies were not followed; there was apathy and callousness on the part of health care providers towards patients.
- There were significant degrees of second and third phase delays.

We were able to visit (a) the District Hospital, Barwani (b) Maha Mrityunjay Hospital, Barwani (c) Community Health Centre (CHC), Pati (d) Primary Health Centre (PHC), Bokrata. This section is based on our visits to these facilities and discussions with various staff members and users as well as corroborative information from other documents and studies. The focus of our observations remains Maternal Health.

District Hospital - Barwani

The Barwani DH is one of the oldest hospitals in central India. We were told that it used to conduct some complicated surgeries in earlier times. It has 300 beds, 60 of which are in the Women's Hospital. The Neonatal ICU is across the road, in another building. There is a serious understaffing of medical staff. While only two of the four sanctioned posts of Obstetricians/ Gynaecologists are filled, there are four available because of redistribution from other facilities. However, the availability of Obstetricians/ Gynaecologists is a problem. The senior most Obstetrician/ Gynaecologist is away four days in a week doing Family Planning operations all over the district in camps. The DH accounts for 23.9 per cent of the institutional deliveries in the district (NHSRC, 2010) .

We heard many reports of patients' dissatisfaction with health care providers in the labour room both from the families and from paramedical staff interviewed.

Another issue that was repeatedly mentioned was that of security - last year a dog entered the wards and took away a baby.

Labour Room

- The Labour Room handles around 400 deliveries per month (*Source*: Nurse on duty).
- The entire Women's Hospital of 60 beds including the Labour Room is staffed with five nurses, two on morning shift, two on evening shift and one on night shift. Observations during our visit and interaction with the nurses revealed that most deliveries are done by Dais. None of these five nurses have been sent for the SBA training.
- Referral Register - A referral register is being maintained only since January 2011. In January 2011, the diagnosis was recorded for one patient and 'Reason for Referral' was a new column that did not exist in the earlier entries.
- Death Register - was reasonably well maintained. It showed that majority of deaths occurred in tribal women, ages 24 to 28 years, with number of deaths as follows - two in December 2010, nine in November 2010, three in October 2010, three in September 2010. Causes recorded included Malaria, Anaemia, Jaundice, Eclampsia.
- Labour Room - The labour room had three labour cots. Attendants of women in labour were seen to be present with them during labour. There were no curtains between the cots. During the visit in January 2011, it was observed that a delivery was being conducted by a Dai with no nurse or doctor present. No partographs were seen to be used. All emergency drugs including Oxytocin, Methergine and Magnesium Sulphate were present in the labour room - however, the Madhya Pradesh government team shared during interactions that they found none of these drugs stocked in the drug store,

suggesting that they were not regularly present in the labour room. Gloves were found to be washed and were drying in one corner of the labour room. No instrument trollies or packed instruments for delivery were found in the labour room - a few pieces of cord clamps and scissors were found lying on the ledge. A sterilizer was present - however this did not appear to be in regular use. There were brand new posters on the walls of the labour room – these included protocols published by UNFPA on management of antepartum haemorrhage, postpartum haemorrhage and anaemia. A newborn corner was present in the labour room with an electric filament bulb as a source of warmth.

Operation Theatre

- There was a well equipped operation theatre in the Women’s Hospital only for obstetric and gynaecological surgeries. There were two operation tables in the theatre and one more in the ante room where, we were told, that uterine evacuations were done. The theatre had a shadow less lamp fixed to the ceiling and was air conditioned. It was also equipped with essential anesthesia equipment like Boyle’s apparatus.
- On interaction with the operation theatre (OT) staff, we learnt that there is only one team to staff the OT consisting of a nurse, an ANM and other support staff. They come for the morning shift and are on call for the rest of the day and during the night on all days of the week through the year - the staff expressed that this situation left them with no time of their own or for their personal lives.
- A scrutiny of the OT register showed that it was well maintained - almost all types of obstetric and gynaecological surgeries were being performed in the DH - these included abdominal and vaginal hysterectomies, emergency peripartum hysterectomies, repair of rupture uterus, laparotomy for ectopic pregnancies and caesarean sections. However, a scrutiny of the timing of surgeries suggested that most surgeries were done between 7 AM and 10 PM with very few surgeries done late at night.

Post natal wards

- Most of the wards had cots. However, it was observed that while some of these cots were occupied, many women were also lying on the floor. The wards were also not very well maintained and often quite dirty. Despite the heightened rates of malaria in the area and the presence of mosquitoes, the lack of mosquito nets or any form of repellents was striking.
- On the day of the visit, the team observed a family planning camp, in a make shift *shamiana* in the hospital campus; a large number of women were waiting for the sterilisation operation. There were also a large number of posters and billboards promoting family planning on the premises.

Doctors’ and Civil Surgeon’s perspectives

The following views were expressed by the Civil Surgeon and doctors in the DH during interviews with them:

- There are inadequate facilities to handle patients with severe anaemia. The DH gets many normal deliveries. The facilities in the periphery are weak (no staff, no electricity) and the Janani Express has made it easier for patients to come to Barwani. Most of the women come with 4-6 gms Hb. Patients come from other districts also. *‘Very critical patients come here, even private doctors refer here’*.

Because of Janani Suraksha Yojana, deliveries have increased in the district hospital. Earlier there were on an average 150 deliveries per month, now there are between 400 and 600 per month.

- The hospital is overcrowded – in a 300 bedded hospital, there are 340-350 admissions everyday; in the 40 Paediatrics beds, some 80 children are admitted at any given time. Infrastructure is required, a new labour room complex is needed, which will also accommodate the ‘Sick and New Born Care’ unit.
- High malnutrition and anaemia are common - 20 to 40 blood transfusions are done each day. This was also observed by the team during its visit to the DH, where on one day, three pregnant women with haemoglobin levels of 6, 4 and 2 gms/ dl were found admitted in the wards. This is corroborated by the NHSRC Report which also records the dangerously low haemoglobin levels and attributes this possibly to nutritional causes aggravated by malaria and sickle cell disease.
- Staffing is a big problem. There is a huge shortage of human resources - up to 50 per cent shortages, 40 per cent of doctors’ posts are vacant. There is no paediatrician in the labour room. The NRHM-RCH provisions have not yet been fulfilled despite the Mission Director having been written to a number of times. Private doctors do not want to come to the DH although there is a provision under the RCH programme of contracting them in, as they have enough work of their own. More anaesthetists, paediatricians and Obstetrician/ gynaecologists are required.
- Although four obstetricians/ gynaecologists were effectively posted at the DH, they were away on training or doing Family Planning operations. A woman general surgeon had been deputed in the Women’s Hospital. She did general as well as obstetric/ gynaecology surgeries. One of the doctors was an MBBS. There was no dedicated nurse for the Labour Room. For night duty, with 62 patients, there was only one nurse, one ayah and one sweeper.
- There is a lot of public pressure. ‘*We work under extreme limitations. We need safety.*’ (In the field we heard reports of one doctor being beaten up last year).
- We observed low motivation and helplessness amongst the three doctors interviewed. Two were waiting to get out of government service and one had applied for voluntary retirement. One said that there was no point giving any suggestions for improvement - it would only jeopardise his/her position. According to them, doctors’ quarters were not sufficient, despite having been with the hospital for 8 years. One doctor who was interviewed, said that he stayed in town resulting in delays in reaching the hospital. Accommodation for nurses and paramedics was in a ‘written off’ state.
- The anaesthetist interviewed who has been in the district hospital since 1993, reported that facilities were inadequate to deal with complicated patients. He felt that postoperative care was severely compromised due to shortage of staff. He reported having dealt with only two to three cases of eclampsia in this period. Most of the deliveries, according to him, were either normal or then referred - although, according to him, no unnecessary referrals were done. - ‘*We have dealt with a number of very critical cases here.*’ His point of emphasis was that there should be a preoperative assessment by the anaesthetist well before a complicated case is posted for surgery, so that they could be better prepared to deal with the patient or could refer her early enough.
- CEmONC and BEmONC cannot be provided according to standards. SBA training in the district is not being done fast enough.

- Reporting of maternal deaths is done as part of the HMIS. But an audit of each death is not done, neither is a monthly analysis of all maternal deaths done. Vyapari Bai's death is being investigated. No action has been taken yet. We were told '*If gross negligence is detected, appropriate action will be taken.*'

Maha Mrityunjay Hospital (MMH) - Barwani

This is a Private Limited Hospital that has received recognition for the Janani Sahayogi Scheme. Although the RCH Programme has recognised MMH as a Janani Sahayogi Scheme hospital since 18 August 2010, we were told that the district officials have not disseminated information in the district. MMH staff has contacted ASHAs and conducted meetings in villages to inform people of the scheme. In two months (October and November 2010), MMH had done four and five deliveries respectively under this scheme.

The hospital has three Gynaecologists, two of whom are full time and live in the hospital premises. There is also a Paediatrician. The DH refers patients to MMH. According to an informant, the difference between the DH and the MMH is that 'there is more nursing staff here and therefore close follow up of patients. Gynaecologists and Paediatricians are available. There is a NICU, the Pathology Laboratory is good, clean, and everything is under one roof.'

From the records we found that three patients had been referred to this private hospital from the DH, since its recognition under the Janani Sahayogi Scheme. Two of these women needed uncomplicated caesarean sections, which could have easily been done at the DH. The third woman was referred from the DH to MYH, Indore on October 5, 2010 because of Uterine Inversion following her delivery at the DH. She had instead been brought to MMH by her family and had to undergo a hysterectomy following repositioning of the uterus (Refer Annexure 3 for details). We could see from the records at the hospital that the family had paid close to Rs. 20000 for this. We were also told by the staff at the hospital that the package they got from the government as part of the Janani Sahayogi Scheme did not adequately cover their costs and very often, the patient had to spend out of pocket for drugs, investigations and other consumables.

Community Health Centre (CHC) - Pati (22 kms from the District Hospital)

Although this facility is designated as a CHC since over 10 years, it does not fulfill the requirements of a CHC. It has also been planned as one of the four CEMONC centres for the whole district under NRHM - however it is not functional as one. A new three storeyed building was under construction since two years. The existing facility has seven beds, seven of which were in the verandah. Women and new-born infants given these beds are often exposed to the severe cold in winter and heat in the summers. During the rains, generally a plastic sheet is used to keep the water out. However, in case of heavy rain where the plastic sheet is not adequate, the women are discharged and sent home. There are no specialists posted here.

Deliveries are done by whoever is on duty, the LHV (no SBA training received), or an ANM (four who have received SBA training). The CHC does around 90 normal deliveries a month and complicated ones are referred to Barwani. Deliveries have increased since the JSY was introduced. The labour room in the CHC is small with space only for one cot. The staff on duty told us that often women had to undergo deliveries on the floor if there was more than one delivery at a time. The labour room was equipped with sufficient numbers of disposable delivery kits and sterile gloves. We were told that a separate kit is used for each woman. Emergency obstetric drugs are also present in the labour room. There is also a newborn corner. The delivery register has detailed

records of women who delivered there - however no details of complications were recorded. Women are not kept for 48 hours postnatally because the beds are insufficient. 'Many times the deliveries happen on the way, patients fight with us for JSY money.' There is no blood storage unit. The small Operation Theatre is poorly equipped with no equipment especially for anaesthesia and is used only for Family Planning operations during camps – on January 21, we were told that 47 laparoscopic tubectomies were done here. In the Laboratory, only Malaria Smears and Tuberculosis Sputum tests are done. Although there is high prevalence of anaemia in the block, Haemoglobin tests are not done in the CHC Lab, instead they are referred out. We were told that there is an X-Ray machine, but no facilities to do a USG.

Staffing is a major problem. One of the doctors was sent for a short course on multi-skilling in Life Saving Anaesthesia Skills six months ago, but since no surgeries are done in the CHC, he has not been able to practice what he learnt and there are serious concerns about skill retention. The other doctor was sent for MVA training to provide MTPs. MTP services are advertised on the wall of the CHC. The trained doctor did two or three MTPs and then started referring them because people do '*hungama!*' and the labour room is too small.

According to the medical officer interviewed, pregnancy related complications are severe anaemia (4 to 5 gms Hb), multi para deliveries. Malaria (Vivax) is prevalent in Pati town, but lesser in the scattered tribal villages. Sickling is also prevalent. Eclampsia is referred after primary care to Barwani DH which is one hour (22 kms) away. The ambulance is functional and so is the Janani Express. Referrals are noted in a register, and the family's consent and signature is taken. '*We try to avoid mortality here*'. According to the doctor, medicines are supplied from the district but shortages are frequent and long. Magnesium Sulphate has to be bought from outside. Misoprostol is used instead of Methergine now. The doctor said, "*I do not do private practice. But if patients come to my house, I see them!*"

On enquiring about Baisi Bai's case (Refer Section 2.1), we were told that she delivered at home but the placenta was retained. On receiving the call from the village, the CHC sent the Janani Express. She was brought in and the placenta was delivered and Baisi Bai died later. The CHC sent a report of her death in a routine way, and no special Maternal Death Report was sent.

Facilities for the staff

There is no separate toilet for the women staff. The Staff Nurse/ANM at the registration desk looked extremely anaemic.

Most of the staff residences are old and in poor condition, with seepage and leaking. There is electricity only for 8 hours a day. The doctor whom we spoke to mentioned that he had been in the CHC for the last six years, and now he needed a transfer so that he could look after his family. Children's schools are one hour away at Barwani - '*the bus ride tires out small children*'. We were told that the staff quarters are in poor condition.

Primary Health Centre (PHC) - Bokrata (21 kms from CHC Pati)

There is a retired doctor on contract in the PHC since one year. The infrastructure is good. There is a Labour Room. But there is no electricity or water. Between 50 and 60 deliveries are reported in the area per month, of which, one or two in a month may be brought to the PHC. Maximum numbers of deliveries either occur on the way or are home deliveries. The houses are very scattered and inaccessible even for the Janani Express. Those who call the Janani Express, ask to be taken straight to the Pati CHC because they know '*we have nothing to*

give them here. Just the previous day he had referred a pre eclampsia case (6 months pregnant) to Barwani - not to Pati because there are no facilities at the CHC Pati. The sub centres are also non-functioning. All the ANMs of the area live either in Pati or in Barwani and do 'up-down' (commute). Because of the scattered households, ANMs cannot reach the pregnant women and awareness of ANC is low in the community. Although there is high prevalence of anaemia, there are no facilities for Hb testing. The doctor said he gives iron and folic acid, and refers women to Barwani. There is a decrease in Tuberculosis detection, may be because of the associated stigma. Antenatal care days are fixed for Tuesdays and Fridays. The immunisation team gives TT injections. The PHC received the solar Ice Lined Refrigerator the previous day. Refrigerators were sent here two or three times earlier, but were returned because there was no electricity. Emergency medicines have to be bought. The doctor did not know whether the ANM had received SBA training.

The Rogi Kalyan Samiti (RKS) has collected Rs. 217000. He did not know whether and how the RKS money had been used as he was on contract and not a part of the RKS.

According to the doctor, the ANC coverage is low because of the difficult terrain. Also, ANMs do not stay in the sub centres because of poor accommodation, and connectivity and community contact is weak. Low ANC coupled with women's anaemia and poor nutritional status puts them at considerable risk. The ASHAs have really contributed-*'in fact beyond what we pay them.'*

When we enquired about Vyapari Bai (Refer Section 2.1), he said that she was the daughter of their ASHA and when he saw Vyapari Bai's condition in the vehicle when she was brought in, he assessed that she was really critical. He advised them to take her straight to the Barwani DH, not even to Pati because the CHC would not be able to handle her condition.

In short, there is a good building and a doctor but not much happening at this facility.

Meeting with a Senior ANM

Before the JSY, she used to do home deliveries. The nearest PHC Talwada is around 10 kms from her sub centre, the other PHC Anjar is not so well-equipped. The Janani Express is very good. It takes women to the Barwani hospital for deliveries. SBA training is given to PHC staff, not to the peripheral field staff. She can do the Hb test, pregnancy detection test, measure BP. Deaths in her area have to be reported in the monthly meeting. She recalled three maternal deaths in her 15 years service in this sub centre. One woman died of jaundice in childbirth. The ANM appears to have high credibility in the community -

SIGNIFICANT FINDINGS FROM FACILITY VISITS

- Outreach health services including antenatal care seemed very poor.
- JSY has increased the load on health care facilities because of increased numbers of institutional deliveries.
- PHCs and CHCs were ill equipped to provide emergency obstetric care.
- No haemoglobin testing facilities were present even in CHCs in spite of the high prevalence of anaemia.
- The DH was ill equipped in terms of human resources and infrastructure, to handle the increased patient load.
- Quality of care at the DH was found to be very poor - there was no skilled birth attendance at delivery, no standard management protocols like use of partographs were followed, infection prevention measures were found to be inadequate, and the cleanliness was unsatisfactory.
- The operation theatre at the DH was well equipped to perform all types of obstetric and gynaecological surgeries but did not seem to be performing any emergency surgeries in the night.
- Staff capacity and motivation at all levels were found to be very low.

she recounted how she took a dying baby to the DH and argued with the doctors to provide her/him medical treatment, which ultimately saved the baby.

She also described the hierarchical relationships, where the doctors and nurses in the DH abuse the ANMs. *"Dr. X in the district hospital was beaten up last year because he did not come to attend a patient with PPH, who died subsequently."*

Several interactions also pointed towards corruption at all levels. For instance, there were narratives of how a local health worker at the Pati Block was caught taking bribes and publicly exposed by the activists of JADS.

2.3 Observations from review of medical records

A review of case records of maternal deaths was undertaken to understand the chain of events at the facility, including management of complications and other medical issues behind the deaths. Where verbal autopsies had been done with the deceased women's families, these narratives were used to corroborate the findings from the case records. A total of 26 records of maternal deaths that happened in the DH between April to December 2010 were obtained from the hospital - of these, verbal autopsies were done by the team in five cases. In addition, referral slips of 47 women referred from the DH with pregnancy complications, from 17th July 2010 to 21st January 2011, were also obtained and reviewed. These are quite likely all the referrals made during that period; there may, however, be informal referrals where the woman was sent off without a letter, of which the team has no documentation. During the visit to Maha Mrityunjay Hospital, we also were able to look at the case record of one woman, who had been referred out of the DH and had had treatment there.

This review was carried out with help from two senior obstetricians who are former professors of premier medical institutions in India with special expertise in maternal health. The complete details of this review are attached as Annexure 3. The significant observations from the review are detailed in this section.

General observations

- a) The case record contained demographic details of the woman, date and time of admission, the doctors' notes, investigation slips, referral notes and date and time of death, if there was mortality in the hospital. They, however, did not contain nurses' records of monitoring of vital signs, administration of medicines and fluids. Thus, details regarding actual frequency and dosage of drugs administered and fluids given were unavailable.
- b) The referral slips contained notes regarding date and time of referral, diagnosis, reasons for referral and the condition of the woman at the time of referral. We were unable however to get the case records of these patients and therefore details of the course in the hospital could not be made out.
- c) The quality of recording in the case sheets in general was found to be very poor. Also, very often, the handwriting on the case records was illegible. Thus, deducing the course of events from the case sheet was quite a challenge and sometimes impossible.

Specific observations

The direct cause of death based on the review of the 26 cases are as follows:

- Severe anaemia - 7
- Malaria - 4
- Haemorrhage - 4 (Antepartum -3, Postpartum - 1)
- Eclampsia / Severe pre eclampsia - 4
- Jaundice - 3
- Obstructed labour - 2 (Transverse lie with hand prolapse)
- Other causes - 2 (Fever with unconsciousness - 1, convulsions with shock - 1)
- Of these, it is not clear in two cases whether it was a maternal death according to standard definitions.
- Based on the information available, at least 21 of these 26 women (81 per cent) belonged to Scheduled Tribes.
- Duration of stay in the hospital of the deceased women ranged from 30 minutes to more than 43 hours.
- None of the women who had died in the DH had any operative intervention on them.
- The quality of care in several of these cases was poor and in many instances, standard treatment protocols were not followed. For example, standard management of eclampsia includes control of hypertension through use of anti hypertensives, control of convulsions through use of Inj MgSO₄ and delivery of the baby as soon as possible. However, in none of the four cases of eclampsia / severe pre eclampsia, was any attempt to hasten delivery either through induction / augmentation of labour or through operative delivery made.
- There also seemed to be problems with regular monitoring of critically ill patients. One of the positive features in the records was regular use of Magnesium Sulphate for eclampsia / severe pre eclampsia. However, whether standard monitoring protocols for monitoring of the patient given MgSO₄ were followed is unclear in the absence of nurses' records. Similarly, postnatal monitoring for excessive bleeding seemed not to be happening regularly.
- Antibiotic use was found to be very high. Antibiotics other than those generally used as first line, were found to be routinely used in all cases even when not necessary. For example, a woman admitted in the antenatal period for management of severe anaemia was started on third generation cephalosporins.
- In some cases, the quality of care was so poor that it may be considered as negligence. For example, in both cases of deaths due to obstructed labour, the women had been admitted with transverse lie with hand prolapse. However, no attempt at delivery by caesarean section was made even though the women remained in hospital for more than three and six hours in the respective instances. It is to be noted that this hospital is fully equipped to do caesarean sections and, in fact, does several every month.

- Severe anaemia was the direct cause of death in seven of these cases, but anaemia was seen significantly in many of the other cases too and could have been a contributory factor in some of these cases. Similarly, high levels of Malaria are also seen to contribute to the deaths.
- A large number of women seemed to have received blood transfusion. On the one hand, blood seemed to be in short supply, with some referrals being attributed to lack of availability of a particular blood group. However, on the other hand, from perusal of the case records, some blood transfusions seemed unnecessary - for example, in women with a Haemoglobin of more than 8 gms/dl.
- There seemed to be an inappropriate use of ultrasound. Case sheets show that women were sent outside the DH to private centres for an ultrasound when it had no bearing on management (e.g., eclampsia, severe anaemia). On the other hand, where use of an ultrasound would have been really useful in definitive management, for example, in antepartum haemorrhage, this was not done.
- Many women were referred from PHCs and CHCs to the DH. Details of initial management there and whether stabilisation was done before referral cannot be obtained from the case sheets, but it does not seem routine practice.
- Perusal of the referral records showed that most referrals were made to MY Hospital, a public sector medical college hospital in Indore. We were informed that this is 4-5 hours away by road. Some of the referrals were for complications that need immediate management - for example, rupture uterus, inversion uterus, haemorrhage in shock - that the DH was fully equipped to handle. A perusal of the OT register showed that indeed such cases including repair of rupture uterus and peripartum hysterectomies were managed here. Such referrals of critical patients to a facility that medical logic says they will never be able to reach alive is at the least, inappropriate. There also seemed to be no accountability with regard to referral - once the woman was out of the DH, its responsibility seemed to end. There are also no details available regarding whether initial stabilisation of such patients was done before referral.
- There also seemed to be a practice of getting the relatives of the woman to sign a consent form on the case sheet that they had been referred to Indore, but had decided to stay on in the DH on their own and absolved the treating doctors of any responsibility in the event of adverse outcomes. Such signatures were found in almost every case record. Given that the DH is a fully equipped CEmONC centre whose primary responsibility is to handle such obstetric complications, the practice of such referrals and then transfer of responsibility for outcome onto the woman or her relatives goes against the very rationale of spending large amounts of money in setting up and equipping such facilities.

**SIGNIFICANT FINDINGS FROM REVIEW
OF MEDICAL RECORDS**

- Of the 26 maternal deaths, anaemia was the direct cause of death in seven, malaria, haemorrhage and eclampsia in four each.
- At least 21 of these 26 women (81 per cent) belonged to Scheduled Tribes.
- None of the women who had a maternal death within the DH had any operative intervention on them.
- The quality of care in several of these cases was poor and in many instances, standard treatment protocols were not followed. In some cases, the quality of care was so poor that it may be considered negligence.
- Many of the referrals were inappropriate and of women in critical condition, raising issues about accountability during referral.
- The quality of recording in the case sheets in general was found to be very poor.
- Garli Bai's case, though recorded as a 'referral', was found to be a case of maternal death through the verbal autopsy.

2.4. Information from Other Sources

2.4.a. Meeting with the Review Team from Bhopal

We were able to meet members of the team on the first day of our visit just before they left Barwani at the end of their visit. The team reported to us their observations as follows:

- Quality of services at the DH is not satisfactory. There is no audit of maternal deaths. There is no referral register, and referrals are noted only in the admission register. The patients' records are incomplete. They felt that there is unsatisfactory management of labour cases, PPH, and cases of eclampsia and large number of referrals to Indore. Very often, drugs are in short supply.
- Though institutional deliveries are increasing in the State and the District, in some pockets, a large number of maternal deaths are being reported. Similarly, infant deaths are also being reported because of asphyxia, aseptic conditions and neonatal tetanus. Nutritional anaemia is very rampant; approximately 80 per cent of the women have anaemia. Malaria is an added burden on pregnant women.
- While various capacity building measures like SBA training, BEmONC training, multiskilling of doctors were conducted, their effect was not visible at the facility level. Standard treatment protocols had been issued for management of various obstetric emergencies, but these were not being followed adequately.
- The Finance Officer observed some mismanagement in the Janani Express service - one vehicle that should have been at the hospital was stationed at the Collector's office. Some instances of patients being charged money for being transported in the Janani Express had also come to their notice.
- Several administrative issues need to be addressed at the district level. For example, there is no facility for new born resuscitation kits and no warmer in the labour room so that neo natal deaths can be avoided. Effective leadership at the district level, it was felt, could address this.

Their recommendations were as follows:

- Peripheral services need to be strengthened. Infrastructure at the health facilities needs to be improved. Mobility support is required for the ANMs.
- Community level interventions need to be strengthened to facilitate Emergency Obstetric Care.
- Mechanisms need to be developed for audit of maternal deaths both at the facility level and at the community level. It is necessary to develop systems for recording maternal deaths, which can be used in the entire state. Maternal death reviews must be institutionalised in the VHSC's role.
- There is a need to address anaemia through provision for nutritional resources.
- There is a need to ensure a regular drug supply.
- There is a need for technical inputs for the staff at all levels, from the PHC to the DH. There is also a need to ensure that Standard Treatment Guidelines and Protocols are followed.
- Well documented case records of all patients must be maintained.
- There were several issues of accountability – there is a need to ensure that corrective action is taken in a transparent manner in the entire health system.

The team felt that their visit had been very useful and that such reviews should be institutionalised in all districts and participation of civil society in an institutionalised manner in such reviews would be useful. They stated that they would submit their report and recommendations to the Mission Director. The further course of action would be decided by the state level higher officers.

2.4.b. Interactions with activists, community members

The investigation team also interacted with activists of the Jagrit Adivasi Dalit Sangathan (JADS), SATHI and the other community members. Several issues were raised in these discussions which are detailed below.

- Services at the peripheral level were completely lacking. ANMs did not visit villages and this resulted in a complete lack of health education. ICDS centres were non functional and provisioning of nutrition for pregnant women through them was not being done.
- There was a high out of pocket expenditure on health, particularly during pregnancy. This was corroborated by two families with whom the team interacted. Both families reported being in debt, as a result of loans taken for pregnancy / childbirth related expenses.
- There were reports of rampant corruption at all levels of the state health machinery.
- Extremely poor transport and communication facilities contributed to lack of access to health care facilities.
- There were several issues related to quality of care at the DH - there was abuse and violence by nurses and other hospital staff towards women in labour, and there was misuse of consent forms towards abdicating all responsibility for any complications and deaths that have occurred.
- They also reported lack of any kind of grievance redressal. There had been mobilisation of a large number of people, particularly adivasi women, in Barwani around the issue of maternal deaths, as evidenced by two large scale protests. However, there was no concerted response to this and no dialogue could be held with district health officials. Instead, there were threats to families who had filed complaints/ raised voices against the State/ doctors, and charges were slapped on people who had protested against the denial of services. Hence, the critical role of JADS and SATHI in highlighting and keeping alive the issue needs to be acknowledged.

2.5 Other Issues at the District level

i. Health Management Information System (HMIS)

The veracity of the District HMIS is suspect. The official ANC data for 2009-10 is

- ANC Registration against Expected Pregnancies 90 per cent
- 3 ANC Check ups against ANC Registrations 82 per cent

However, this does not match what we saw in the field or with the CAG Report for the state of Madhya Pradesh for the year ending March 31, 2009, according to which '49 per cent to 58 per cent pregnant women were not registered during their first trimester.'

ii. EmOC facilities

Madhya Pradesh Government website mentions four CEmONC in Barwani District - the Barwani DH, Sendhwa Civil Hospital, Pati CHC and Pansemal CHC. During our visit, we found that the DH was fully equipped to be a CEmONC centre, but the quality of care was very poor and inconsistent. CHC Pati did not even qualify to be a BEmONC centre or a 24 × 7 PHC according to standard definitions. The NHSRC report states 'Sendhwa Civil Hospital does not qualify as an FRU and not even as a 24 × 7 PHC. Almost all complications are referred, thus the institution can only be described as providing safe delivery by SBAs'.

The District Health Action Plan (DHAP) 2010-2011 states that two FRUs and eight 24 × 7 CHCs are functional in the District and nine BEmONCs are functional.

CAG Report observed that 80 per cent of the CHCs were non functional and 20 per cent were only partially functional during 2005-06.

iii. Process Indicators for EmOC

We attempted to calculate the UN process indicators for the district, based on available information of HMIS data of 2009 - 10. This is depicted in the table on page 36.

iv. Poor outreach services

Our observations, both of case records from the DH and during interviews with families of deceased women and with health care providers, revealed that antenatal care coverage was very poor - the difficult terrain, poor roads, and non-existent public transport seemed to contribute to this significantly. We also found Anganwadi centres to be non-functional in many places. Where antenatal care happened, it was limited to giving tetanus toxoid injections. In an area with such high prevalence of anaemia, no specific measures seemed to be taken to address the issue - in fact, very few families of deceased women reported them having received routine iron supplements. Surprisingly, the PHC and CHC we visited did not even do a haemoglobin estimation as part of the services provided in spite of having qualified lab technicians. The NHSRC report also mentions that VHNDs were not being held regularly and on fixed days and this resulted in poor antenatal care coverage.

v. Breakdown of dialogue

There was complete breakdown of dialogue between the Public Health system and thousands of adivasi people and their organisation (JADS) involved in promoting health rights, due to extreme lack of responsiveness of officials. During the demonstrations on 28th December 2010 and 12th January 2011, despite the fact that thousands of people had come with complaints concerning the DH, the Civil Surgeon or other senior officials did not even care to come and listen to these demands, let alone responding to them in any effective form.

vi. Large scale activism around maternal health

There was a considerable level of activism among people concerning health rights due to organisation and mobilisation by the Sangathan, manifested in two major demonstrations in the span of a fortnight on the issue of maternal deaths, involving thousands of people. This level of mobilisation on an issue like maternal deaths is rarely seen. The positive role of JADS in highlighting these widely prevalent yet often

ignored issues in a dramatic manner through mass action must be appreciated. Such organised popular demand for fulfillment of health rights should be promptly and effectively responded to by the public health system, instead of being stonewalled and dealt with by punitive measures.

Process Indicators for EmOC			
Indicator	Accepted standards	District Barwani	Source of information and remarks
Amount of EmOC services available.	UN - Minimum: 1 CEmOC facility and 4 basic facilities for every 500,000 people NRHM PIP - 11 BEmONC centres and 4 CEmONC centres in Barwani district.	Only one centre (DH) functional as a CEmONC centre. Data inadequate to comment on BEmONC centres.	Team's observations during visit and NHSRC report. There are other private hospitals that provide caesarean sections, however, none of them have a blood bank or a blood storage unit. The private hospitals in Barwani town access blood from the blood bank of the DH.
Geographical distribution of EmOC facilities.	Minimum: 100% of subnational areas have the minimum acceptable numbers of basic and comprehensive EmOC facilities.	Only one CEmONC centre functional in the whole district with more than 10,00,000 population.	Team's observations during visit and NHSRC report.
Proportion of all births in EmOC facilities.	Minimum: 15%	13.5% of all births in the district occur in the DH which is a CEmONC centre. Another 22% of births took place in CHCs. As how many centers actually function as BEmONC centres is not known, we were unable to calculate the proportion of deliveries happening there.	HMIS 2009-10.
Met need for EmOC services - Proportion of women with obstetric complications treated in EmOC facilities.	Minimum: 100% (estimated as 15% of expected births).	According to the NHSRC report, of the 6190 complications that would be estimated to occur among women in the district (calculated as 15% of all pregnancies), the DH handled 118, Karuna 48 and Ashagram 126 giving a total of 292 complications managed. This accounted for a Met Need for EmOC of 4.7%.	We were unable to calculate the complications treated as there was no record of these in the labour room registers. The NHSRC report uses the OT record for the number of complications - this, as the report accepts, is gross underreporting as it does not take into account complications that did not require surgery. However, we also found based on our observation in the field, that this did not take into account the large numbers of cases that were being left unattended and the large number of referrals outside the district, as evidenced during the review of the case records and referral letters.
Caesarean sections as a percentage of all births	Minimum: 5% Maximum: 15%	1.5% (According to the NHSRC analysis, the total number of Caesarean Sections done in the district were 571)	This is much less than the accepted minimum standard, signifying a huge unmet need.
Case fatality rate-Proportion of women with obstetric complications admitted to a facility, who die.	Maximum: 1%	This cannot be calculated as there is no record of how many women with complications were actually managed at the DH and maternal death reporting is poor for the facility and almost non-existent in the community.	

vii. Ambulance services

We found during our interviews with families that several of them had used the Janani Express service to reach facilities. However, the NHSRC reports that only 3.5 per cent of women reaching the district hospital over a period of 3 months had used this service. The government team from Bhopal also raised issues regarding demands for payment from families for use of the service. In addition, ambulance services for transfer of women who are referred to Indore seems to be a problem - we were told that the Janani Express ambulances do not ply outside of the district. At least in one of the cases of maternal deaths investigated (Garli Bai), the woman could not be taken to Indore after referral there as the ambulance was not made available and the family could not afford hiring a private vehicle. Several other families interviewed also reported spending considerable sums of money on hiring private vehicles for transport of women outside for ultrasonograms and to private facilities.

viii. District's response to Malaria and Sickle Cell Anaemia

With such high levels of anaemia in the district, the district authorities did not seem to be doing anything to manage and prevent these conditions. The Annual Plans do not address these issues. The CAG Report points out that the incidence of malaria cases increased during 2005-08. 'In Barwani, malaria was not recorded in the case notes of patients and neither was it mentioned as a cause of maternal death' (NHSRC Report).

Similarly, about Sickle Cell, the NHSRC Report notes that it would be important to know how many persons in the community are carriers and how many are homozygous in order to plan out systematic interventions.

ix. Review of maternal deaths

Maternal Deaths are not reviewed regularly in the District either in facilities or in the community, in spite of National guidelines institutionalizing such reviews. Corrective action does not appear to be taken. The Maternal Health PIP 2010-2011 mentions FGDs will be done during Village Health Nutrition Day's (VHNDs) involving ASHAs. Also MD Audits will be done at facility level.

x. Human resources

Shortage of human resources is a problem in the entire state. The CAG Report mentions that shortage of personnel ranged from 18 to 46 per cent during 2008-09. One third of the PHCs in 10 of 12 test checked districts were running without doctors. It was not clear if the District Administration had taken any measures to address this problem of human resources.

xi. Maternal Health PIP 2010-11

This states that three facilities in each district will be taken up for complete operationalisation - the DH, one Civil Hospital and one CHC. The focus shall be on the output and services rendered. Holistic planning for operationalisation of 24x7 PHCs will be done. Monitoring of VHNDs to improve quality of ANC will be done. 48 hour stay post delivery will be mandatory. This raised several questions.

- 'Tertiary facilities are overloaded so micro plan should promote primary and secondary facilities for services' - What is the District's plan for this?
- What is the Grievance Redressal Mechanism? How many grievances have been redressed and how?

- The Maternal Health PIP also states, ‘TBAs should not be promoted as primary provider of deliveries’. How does the district view this diktat from the state, especially given the problems of terrain and inaccessibility and non-functioning primary health care system?
- Who is in the Quality Assurance (QA) Cell at the District level, what are the Terms of Reference (TOR) of the QA Cell?
- Which ‘Hard Areas’ have been identified? What incentives and additional allowances have been formulated?
- ‘There is need for assured referral linkage both from the beneficiary/community to the facilities and also between facilities.’ What action has the District taken for this?

xii. Corruption

Audit reports of the Deen Dayal Antyodaya Upchaar Yojana for financial year 2007-08 point out that the CMHO’s office and the Civil Surgeon’s office ordered more medicines than required and did not comply with various mandatory requirements. The total financial irregularities under the Deen Dayal Yojana over two years amounted to approximately Rs.74 lakhs. What action has been taken on this?

Some of these issues would have been clarified had the District officials met us.

Chapter 3

Emerging Issues and Discussion

The preceding section documents the investigation team's findings on the large number of maternal deaths in District Barwani. While this issue has been specifically looked at from the context of Barwani, the findings throw up issues relevant at a larger level.

It is well known that most maternal deaths are preventable. Skilled Birth Attendance with access to Emergency Obstetric Care has been accepted as one of the main interventions to reduce maternal mortality. Thus, every maternal death is a violation of a woman's Right to Life and Right to Health. It is well known that mortality in the first year of life of children born to mothers who die in childbirth is much higher than that of other children; we found this to be true in most of the cases we investigated. Thus, a maternal death is a double tragedy for the family and in fact a violation of Right to Life and Right to Health of two persons: mother, and possibly child.

The Government of India's major intervention for improving maternal health has been the JSY; this is built on the premise that moving women to institutions at the time of delivery would automatically result in better maternal health care, and therefore reduce maternal mortality ratios. The findings from the investigation in Barwani bring up several fallacies in this premise -

- Women are being forced to travel great distances with a lot of difficulty to access care during delivery, in order to be eligible for the incentive provided under the scheme. This is because primary health facilities that are closer to their homes are not prepared to conduct normal deliveries.
- Institutional readiness to handle the increased case loads of women approaching them for deliveries is an important issue. While NRHM has spent several crores of rupees on preparing institutions to provide Emergency Obstetric Care, it is obvious from the investigation that such care is in fact not being provided. Quality of care remains an important issue; we find that Skilled Birth Attendance is inadequate, adequate infection control measures are not being followed, irrational use of oxytocin and antibiotics is prevalent, and women are being subjected to abuse and violence during labour. However, none of these are measured as indicators when monitoring success in maternal health interventions. Rather, the number of institutional deliveries is assumed to be the proxy for better maternal health care.
- The exclusive focus on institutional deliveries has resulted in a total lack of attention to either antenatal or postnatal care. In a district with very high prevalence of anaemia, no concerted efforts have been put in to investigate and address the issue. Thus, a 'one size fits all' policy seems to be the norm.

In the light of all of these observations, the whole focus on JSY needs to be questioned. Is it ethical to push women to institutions when adequate standards of care cannot be ensured? Is it not manipulative to use incentives to coerce women into accessing institutions when the state cannot ensure that they will receive adequate quality of care and dignity during childbirth?

The United Nations recommends several process indicators towards measuring progress in provision of Emergency Obstetric Care in an area. These include -

1. Amount of EmOC services available
2. Geographical distribution of EmOC facilities

3. Proportion of all births in EmOC facilities
4. Met need for EmOC services
5. Caesarean sections as a percentage of all births
6. Case fatality rate

However, when we attempted to measure some of these indicators for District Barwani, we found that the data being collected as part of the HMIS was inadequate for such measurement. As discussed earlier, institutional deliveries cannot be the only yardstick for measurement. It is necessary that adequate information is collected towards measurement of progress on reducing maternal deaths.

The NRHM also has promised several service guarantees, and has prescribed the IPHS for facilities. However, at the ground level, even after five years of NRHM, many of these remain unachieved. The investigation found several issues related to the health system that compromised maternal health care tremendously, and contributed directly to the high numbers of maternal deaths.

- Antenatal care and postnatal care were found to be completely ignored.
- The NRHM promise of upgradation of the public health facilities and staffing has not yet been fulfilled. Primary health care facilities, sub centers and PHCs appeared to be practically non functional. The CHC that the team visited, despite being designated a CHC for more than 10 years and also a designated CEmONC centre, did not fulfill the requirements of a CHC/CEmONC centre.
- User fees were found to be widely charged in public facilities. Families had to pay for various services including drugs, laboratory services, and blood transfusions. Even when certified to be Below Poverty Line and thus eligible for free drugs and services, the investigation found that many families had to pay for drugs, diagnostics, and other services from their own pocket in public facilities.
- There appeared to be a large unmet need for various kinds of services; emergency surgery, obstetric care, and lifesaving blood transfusions were often unavailable even at the DH. The DH had neither the infrastructure nor the required human resources to manage the patient load resulting from JSY and the non-functioning primary health facilities. Most Labour Room Deliveries were done by Dais who did not have SBA training. There appeared to be no monitoring of standard indicators and treatment protocols. Thus, there were serious problems with quality of care, rationality of treatment and unnecessary referrals at every level.
- A review of several of the case records of maternal deaths seemed to point to poor quality of care that would, in some cases, amount to negligence in care at the district level. These include cases of eclampsia and severe preeclampsia, wherein definitive attempts at delivery were not made in spite of duration of stay of more than 12 - 24 hours in the hospital (Vyapari Bai, Nanki), and cases of hand prolapse, wherein women were not operated on even after six hours of stay in the hospital (Devkunwar, Garli Bai).
- There appeared to be a general attitude of ‘don’t take any risk, pass the buck to the next level’; this was taking place from the CHC to the DH, from the DH to the private hospital or the Medical College Hospital. Referrals of women with documented rupture uterus (Bhatu Bai), with previous caesarean and hand prolapse (Garli Bai), and with inversion uterus (Amreen) substantiate this.
- Staff facilities and working conditions were not satisfactory. The motivation among doctors was low. There was no supportive supervision.

Thus, one of the main issues emerging from the investigation is that of governance and accountability that could actually implement and operationalise existing plans at the ground level.

Governance is seen as a key issue affecting the functioning of health systems. It includes the following domains: strategic vision, participation and consensus orientation, rule of law, transparency, responsiveness, equity and inclusiveness, effectiveness and efficiency, accountability, intelligence and information, and ethics.¹¹ When assessed along these domains, the investigation found governance falling short on many counts. This is substantiated by the pervasive corruption at all levels of the health system, the total lack of attention to local problems like anaemia and malaria, the lack of adequate grievance redressal systems, the systemic neglect of a resource poor tribal area, the poor quality of care and apathy in health care institutions, and the frequent flouting of the ethical health care principles of beneficence, non maleficence and autonomy.

**PROMOTING ACCOUNTABILITY IN REFERRALS-
THE TAMIL NADU EXPERIENCE**

Theni district health officials learned that poor families often become intimidated when referred to another facility, and that medical staff at the recipient hospital do not always pay adequate attention to poor families seeking emergency assistance. They replaced the referral system with a system of accompanied transfer. Poor women from rural areas are already scared to come to health facilities for a variety of reasons- no familiarity, resigned to their fate because they feel they are uneducated and they made a mistake," said Dr. Swamy, "On top of this, if you tell them that the case is referred because it is serious, it scares them some more. So I banned the use of the word 'referral,' and created a system to accompany the family with a health worker - 'accompanied transfer' system." Going with a health worker at the time of referral improved the treatment and assistance given to such patients at the recipient hospital at the time of admission. The "accompanied transfer" system has now been institutionalised across Tamil Nadu in public health facilities. (HRW report)

There is thus an urgent need to improve governance within the health system at facility, district and state level. Indicators need to be developed to measure the various domains of governance periodically, and actions to improve governance need to be taken based on these.

Accountability of health systems is seen as an important aspect of good governance. NRHM mentions communitisation of services and accountability as one of its core principles, and has also established several spaces for community participation towards ensuring such accountability, including VHSCs and RKS. However, given the extreme degrees of social inequities and the inherently hierarchical nature of health systems, such accountability cannot be ensured unless specific attention is paid to addressing power relations. Marginalised groups like adivasis face significant obstacles when demanding accountability; adivasi women are doubly disadvantaged because of caste and gender power hierarchies. Moreover, negotiating with a greatly mystified medical profession in times of adversity and danger to life magnifies existing power relations. This is also evident from the investigation, where in spite of several investments into making health facilities functional in terms of human resources, skill building and infrastructure, lack of accountability at various levels was found to adversely affect service delivery and outcomes. The District Officials were not held accountable. It appeared that there were instances of corruption and enquiries against the Civil Surgeon and the CMHO where no action had been taken. Thus, specific interventions need to be put in place to ensure accountability at all levels to both the system and to the community. Further, these will need to address issues of power hierarchies.

¹¹ Siddiqi, S. et al. (2008). Framework for Assessing Governance of the Health System in Developing Countries: Gateway to Good Governance. *Health Policy* (2008), doi:10.1016/j.healthpol.2008.08.005).

An analysis of maternal deaths that took place in the DH between April and November 2010 shows that the majority of these deaths happened in women belonging to Scheduled Tribe (ST), one of the poorest and most vulnerable sections of society with considerably less access to health care services. A strong caste/class gradient can be observed in access to health care and its quality. While poor quality of care and lack of technical expertise is a factor in these maternal deaths, more importantly, negligence and discriminatory attitude towards marginalised sections of the society, particularly adivasis, are also responsible. Health care providers mirror prejudices and stereotyping prevalent in the larger society. Though humanism and compassion in health care providers are regarded as essential positive attitudes for good quality of care, the investigation revealed apathy at all levels of the system, including in facility level providers towards adivasi women. At the very least, professional ethics demand that beneficence, non maleficence and autonomy be practiced; these have to be minimum measures of professional accountability. Cases like those of Garli Bai reveal that far from professional standards, even minimum humanistic interventions are missing.

Some concrete areas for improving accountability as far as maternal health is concerned could be the following -

- Maternal Death Reporting and Reviews, with specific attention to involving multiple sources of information and multiple constituencies of people in the Review process, is one such measure. This would generate public awareness about maternal deaths and improve accountability. Such reviews could include existing fora like self-help groups of women, Panchayat representatives, Village Health and Sanitation Committee members, People's Organisations, civil society and academic institutions. The results of the Reviews and corrective action taken thereof could be publicly disseminated. Good practices from states like Tamil Nadu could be adopted towards this.
- Public dissemination of the analysis of HMIS data that is presently collated at district and state level, along with systemic action based on these findings, would be another measure. In addition, flow of HMIS data downwards would improve local ownership of such data. The data collected at every facility could be proactively disclosed in culturally appropriate formats to local communities, and appropriate action could be taken along with local participation in decision making.
- Grievance redressal is an important measure to establish accountability. Several problems with existing mechanisms have been identified - women's lack of awareness of their entitlements under different schemes, absence of a clear complaints procedure with a time-bound inquiry period, absence of an early or emergency response mechanism to help families that experience difficulties

**POSITIVE FEATURES OF TAMIL NADU'S
MATERNAL DEATH REPORTING SYSTEM**

- Awareness campaigns around maternal health.
- Encouraging death reporting from multiple sources, including family members and health workers.
- Encouraging reporting of all deaths of pregnant women, irrespective of cause of death.
- Targeted training for health workers on maternal death investigations.
- Focusing on all health facilities, public and private.
- Creating a conducive environment for reporting deaths, including by explaining to health workers the purpose of such reporting.
- Assigning a clear purpose to the inquiry by identifying health system gaps that need to be rectified.

in seeking appropriate care, poor access to any complaints procedure, especially for poor women with little or no formal education, lack of support to pursue complaints, fear of reprisals from doctors and health workers where complaints are pursued, and lack of independence at the time of inquiry. Some concrete actions to improve grievance redressal would be to develop, through a participatory and transparent process, a facility-based or regional system of ombudsmen to receive grievances and pursue timely redress, which will be easily accessible to women with little or no formal education. Further, early response systems, including a telephone hotline for health-related emergencies which women facing obstetric emergencies could use, should be developed. (HRW Report)

- Sensitisation efforts need to be carried out at all levels of the health care system to understand the cultures and contexts of marginalised groups. Attitudes towards patient care need to be measured as indicators of quality of maternal health care. These should include disaggregated data on morbidity and mortality indicators, as well as reports of abuse during labour.
- Participation of marginalised groups in various spaces for accountability should be ensured in order to specifically improve accountability to these groups. This would require affirmative action that would move beyond mere tokenism of consultation to actual influence in decision making.

The investigation also revealed a close link between poverty and maternal health. This was characterised by high maternal mortality, low coverage of antenatal care, and high under-nourishment among women in the area. This was compounded by the systemic neglect of this district, such as lack of adequate communication and transport facilities. Several schemes meant for areas with poor indicators were found to be non functional. For instance, the major part of the Supplementary Nutrition Programme (SNP) under ICDS is for the provision of nutrition towards the provision of dry ration to lactating mothers and pregnant women; in the discussion with family members, it was clear that no SNP was provided to pregnant and lactating women. Further, malaria was a prevalent problem that was unaddressed. All of these added to the health system's failures to provide care at all levels, thus transferring responsibility for care in life threatening situations to poor families. However, high incidence of poverty, lack of social security, and low wages pushed families to take difficult decisions about shifting pregnant women to private hospitals or higher referral centers that could be several hours away.

The investigating team also felt that the roles of the TBA, the ASHA and the ANM also need to be re-examined given the specificities of the local context. In an area where no services are accessible, let alone health care services, how does one ensure that the ANM provides a basic minimum package of services to the remotest corners? Planning needs to consider mobility support for her in order for her to be able to do this. In addition, ASHA as the local health resource seems to be under-utilised. The investigation found that many families had not even heard of the ASHA; interviews with ASHAs revealed large gaps in essential knowledge on basic obstetric complications. In remote areas, the role of ASHA complementing the ANM as a health care provider needs to be considered, and capacity building and supportive supervision needs to be planned accordingly. The role of the TBA also is in question- in its blind push towards institutional deliveries as the only focus, maternal health policy has ignored this locally available resource. It is indeed ironic that women have to travel long distances to institutions to be delivered by the same TBAs they could have accessed much closer to home. Innovative solutions need to be thought out to provide women with safe childbirth services closer to home, while making access to Emergency Obstetric Care paramount.

Finally, effective functioning of any public health system is not just a technical matter of delivering services, important as that is. It also involves building and maintaining the trust of the people through responsiveness and equitable attitudes, developing a culture of rights and accountability, and carrying out regular dialogue and participatory review towards ensuring services that are both medically effective and socially responsive to people's needs. Ultimately, no public health system can function effectively without definitively keeping at its centre the public themselves.

Chapter 4

Recommendations

The Recommendations emerging from our findings and discussion of issues fall into the following themes -

1. Improving health services by strengthening health systems
2. Improving governance and accountability
3. Addressing determinants of maternal health

While the Recommendations emerge from the particularities of the situation in Barwani, they have a bearing on maternal health in many deprived and marginalised areas of the country. Thus the Recommendations may range from micro action plans addressed at a particular situation in Barwani District, to larger policy level recommendations. In Annexure 4 we have also tried to categorise these Recommendations according to authority centres and time frames, from Immediate Action Required to a Longer Term set of actions. This can serve as a checklist for operationalising the recommendations that follow.

Although addressing the determinants of health is logically the first step, it is also a longer term agenda and requires collaborative and inter-sectoral action. Herein, the Governance and Accountability issues are addressed first of all as these have emerged as the most critical set of issues.

4.1 Improving Governance and Accountability

The Barwani situation shows that there is a serious crisis of governance and accountability within the health system. Therefore, we recommend that -

- The State should accord highest priority to addressing the issue of Maternal Health in Barwani and Madhya Pradesh. The Chief Minister should take immediate cognisance of the issue, and should ensure implementation of these recommendations.
- The State should initiate immediate detailed review of the maternal deaths that have taken place in the district since April 2010, looking at systemic issues, as well as failures of individuals or systems in individual cases.
- State level health officers should take immediate action against those who are found to have failed to discharge their duty and have proved to be negligent at the district level and in the DH in Barwani.
- The State should review all the maternal deaths and immediately provide full compensation to all the families of the women who died due to negligence.
- The State should take stringent action against those found guilty of corruption, in order to deliver a clear message that corruption will not be tolerated at any level.
- The State should take immediate action to ensure prevention of maternal deaths, which are mostly preventable, but continue to take place routinely.

Grievance Redressal System

- An effective Grievance Redressal System (GRS) should be immediately set up. The District Collector and CMHO should be directed to take immediate and effective action, within one week, on all matters which are within their competence. An Action Taken Report must be sent immediately to the Mission Director NRHM/ Director Health Services who should follow up on the same. In matters that are beyond the competence of the District Collector and/or CMHO, they should, within a period of two days, forward the complaint to the Mission Director/ Director Health Services for appropriate action. Action in these cases should also be taken immediately, while punitive action should be taken within 15 days. The complainant should be notified within 15 days of the action taken on the complaint.
- GRS should constitute of two components:
 - *Immediate response system* – Names and phone numbers of concerned officials to be displayed, who can be contacted and who should solve problems faced by patients in real time. Also, installation of a complaint box which is to be opened in the presence of citizen representatives and reviewed as below.
 - *Review and systemic correction system* – As part of a regular review/ monitoring process, all issues that are reported through the GRS and complaint box should be periodically discussed in a joint forum (including officials, Sangathan and citizen representatives) to ensure that the problems are not repeated and the underlying deficits are addressed effectively.
- Some concrete action to improve grievance redressal would be to develop, through a participatory and transparent process, a facility-based or regional system of ombudsmen to receive grievances and pursue timely redress. This mechanism should be easily accessible to women with little or no formal education. Further, early response systems should be developed, including a telephone hotline for health-related emergencies for women facing obstetric emergencies. (HRW Report)

Effecting Change in Organisational Culture

- As discussed earlier, there are serious issues in the culture of health systems - corruption, individual personal gain, dereliction of duty - that need to be changed. Staff at all levels, from doctors in the DH, to MOs in CHCs and PHCs, to ANMs and MPWs, need to undergo sensitisation programmes about responding to patients needs and observing patient rights, behaving respectfully with patients, especially adivasi patients including women, and use of common health related terms in local adivasi language. Sensitisation and Reflection Workshops need to be conducted as part of an Organisational Development effort. These could address issues like professional ethics, commitment to duty, sensitivity to the concerns of the poor, tribals and women, power relations, Indian Constitution, human rights, and respect for all individuals.

Rebuilding Public Confidence

- Keeping in view the present scenario of complete lack of responsiveness of local officials and the urgent need to re-establish public confidence in the public health system, State level officials should at

the earliest organise a multi-stakeholder meeting / Jan Samvad in Barwani, and report the key findings of the official investigation team. This should be accompanied by a statement of time bound plan of action for improving health services in Barwani (including disciplinary actions) and addressing the concerns of JADS, civil society organisations and residents of Barwani.

- To ensure that these measures are actually implemented in an accountable manner, such a meeting should also work out an appropriate plan for participatory monitoring / review of health services, in Barwani DH and Women's Hospital and CHC in Pati and other areas, in consultation with JADS, which may include periodic review meetings to address issues and complaints in a regular manner.
- A help desk should be started at the earliest in Barwani DH and Women's Hospital, with a person to guide patients to access services and to help them communicate their problems to relevant officials. Such desks are clearly stipulated in IPHS for 200-300 bedded hospitals. Hence in due course this should be managed and run by the Hospital itself, with appointment of two full time social workers (conversant with local languages) as specified in IPHS.
- Exposure and awareness visits of all ASHAs and VHSC members to DH Barwani should be organised in batches, to familiarise them with the services, procedures, patient rights, and grievance mechanisms available, so that they can effectively guide/ accompany patients as required.
- Mass awareness campaigns on issues of antenatal care, nutrition, delivery care, danger signs in pregnancy, and labour should be carried out by the health staff in villages, with involvement of VHSCs and ASHAs, to ensure widespread popular awareness on these issues. This should be accompanied by regular participatory review of provision of the relevant ANC, delivery, and nutrition related services, based on feedback from Sangathan members and VHSC members.
- There should be an audit of all delivery related referrals in the last six months, from Barwani DH to the private hospitals in Barwani and also Indore. If referrals are found to be inappropriate, expenses that patients have incurred due to wrong referrals should be reimbursed to patients.

Transparency

- Guaranteed health services should be displayed in Barwani DH and Women's hospital, all CHCs and PHCs, thus enabling people to demand these services. This should be accompanied by display of phone numbers of officials to be contacted in case of grievance, and the grievance redressal mechanism in simple language. Various types of information related to the performance of health services, maternal and child deaths, usage of RKS / IPHS / Untied funds at various levels should be displayed and updated on a regular basis in respective facilities (as per mandatory display under the RTI act – mentioned in IPHS). All such information should be made available to ordinary citizens and civil society members on request.
- Public dissemination of the analysis of HMIS data that is collated both at district and state level, along with systemic actions taken based on these findings, should be done to increase transparency. In addition, flow of HMIS data downwards would improve local ownership of data. Data collected and action taken at every facility could be proactively disclosed in culturally appropriate formats to local communities, along with local participation in decision making.

4.2 Improving Health Services by Strengthening Health Systems

Equipping Health Facilities and Providing Services

- Make select facilities fully functional as CEmONC and BEmONC Centres particularly in the underserved areas.
- Ensure that CHC/ FRU have staff, facilities and infrastructure for c-sections, emergency care, and provision of skilled personnel, equipment and supplies, particularly in underserved areas. Fill up vacancies of doctors and other related staff as soon as possible.
- Undertake efforts to ensure that the DH in Barwani and other such Districts are equipped and staffed adequately to discharge their functions of dealing with critical case load. This will also include efforts to improve the motivation and morale of the work force.
- If patients are not accompanied by suitable donors, blood must be made available to them from the blood bank. If fresh blood is required or the bank does not have the required group, personnel at the blood bank should contact suitable donors from a regularly updated donor list that should be available at the blood bank at all times. In addition to DDY patients, patients in critical need of blood should also be given blood free of cost if they are not in a position to pay.
- Ensure provision and monitoring of safe abortion services in CHCs and PHCs.

Human Resources

- Post individuals in weaker districts who are known for their results orientation, efficiency and integrity, and give them all the support that they need to turn the situation around in these districts.
- Deploy available human resources rationally, and ensure through creating an enabling environment that they can contribute effectively. Develop creative solutions for managing the human resource shortage, without compromising the quality of care; examples of good practices from other states will be useful.
- Undertake urgent skill building training of all staff engaged in delivering services, and set up monitoring mechanisms to ensure supportive supervision post training.
- Develop a realistic plan to strengthen the primary health care in tribal districts of the State, including:
 - ♦ Strengthening and monitoring of required numbers of ASHAs.
 - ♦ Strengthening ANMs with SBA training and ensuring that subcentres can handle quality ANC and normal deliveries. Improve the infrastructure of the subcentres to ensure that the ANMs can stay and provide quality ANC, Intranatal Care and Postnatal Care.
- Identifying skilled Dais, and building their capacities to handle normal deliveries and identify complications especially in difficult areas. Ensuring support for Dais, including access to Emergency Obstetric Care when required. There should also be a better system of remuneration and incentives/ rewards for Dais.
- In the longer run, ensure quality health-related human resources for the state of Madhya Pradesh, including a comprehensive human resources strategy. This should include adivasi girls and boys.

Ensuring Quality of Care

- Ensure continuity of care through the antenatal and postnatal periods, with follow up care in case of complications.
- Ensure that a regular schedule for VHNDs is planned, publicly disseminated and implemented. Provide adequate support to health care staff for travel towards this. Set up monitoring mechanisms to ensure delivery of a select package of services, including appropriate antenatal care, nutritional interventions and immunisation.
- Monitor malnutrition closely so as to prevent acute malnutrition, and provide special nutritional support for malnourished children and women.
- Develop systems to make referrals accountable, including provision of ambulances, and continuity of care during referrals by providing ‘accompanied transfers.’ Referrals to a higher centre must automatically include provision of ambulance/ Janani Express vehicle. This should also be the case for referrals to Indore or mandated Janani Sahyogini hospital. Referrals should be accompanied by the proper referral slip clearly indicating investigation carried out and treatment given, vitals, etc., as well as reason for referral.

Improving Quality through Monitoring

Plan for clinical audits in the District Hospital and CEmONC and BEmONC Centres

- Ensure Maternal Death Reviews take place in all districts according to National Guidelines including
 - ♦ Set up and operationalise systems for reporting of maternal deaths both at the facility and community level.
 - ♦ Ensure that Maternal Death Reviews are carried out at the facility and community levels and systemic corrections made based on their findings.
 - ♦ Ensure that Maternal Death Reviews are institutionalised at the district level in the monthly Inter Departmental meetings chaired by the District Collector and systemic actions taken.
 - ♦ District level Maternal Death Reviews are collated at state level and analysed to initiate systemic changes based on their learnings.
- Review of all referrals (especially to Maha Mrityunjay Hospital and MY Hospital Indore) to ensure that unnecessary or unwarranted referrals are minimised.
- Undertake quarterly reviews against select indicators like maternal deaths, newborn deaths, referral rates, C-section rates, etc.

4.3 Action on Determinants of Maternal Health

- The CM has to ensure commensurate investment into tribal areas to compensate for the historical disadvantage meted out to these populations especially women, to improve literacy, livelihoods to reduce migration, food and nutritional security and health indicators. Develop a plan for controlling nutritional anaemia and management of sickle cell anaemia, anaemia compounded with malaria

for districts like Barwani, with participation of the affected districts. Also ensure malaria control, detection and treatment activities are planned and undertaken. This will also call for coordinated Inter - Departmental action.

- Ensure support structures for better access to health care including roads, transport and communication facilities.
- Budgetary provision for improving the nutritional status of adolescent girls.

4.4 Recommendations for Civil Society Organisations

- Continue to be vigilant watchdogs, 'eyes and ears on the ground', to ensure that quality health services reach the most marginalised sections of society.
- Undertake awareness campaigns on nutrition, sickle cell anaemia, malaria, etc., in order to effect a change at the household level, such as equitable distribution of food and other resources within the household.
- Engage with the health system at all levels - state, district, block - including effective use of available spaces. Try and work in partnership with the health system to ensure that necessary services reach the last man/woman/child.
- Civil society must organise to play the above mentioned roles of monitoring and engaging in a coordinated way to make health and elimination of corruption into issues of mass awareness and action.

4.5 Implications for the National Level

- The current policy focus on institutional Deliveries and Janani Suraksha Yojana needs to shift to safe deliveries - continuum of care including quality ANC, intranatal care and PNC - done by skilled birth attendants.
- Indicators for Maternal Health have to move beyond number of JSY and number of Institutional Deliveries to include some of the UN Process Indicators described earlier (Amount of EmOC services, proportion of births in EmOC facilities, Met need for EmOC services, c-sections as a percentage of all births, Case Fatality Rate).
- Governance issues - including corruption and accountability and redressal - in the health sector need to be addressed urgently. Indicators for assessing governance in the health sector need to be developed and institutionalised.

Annexure 1

List of places/facilities visited and people met

- January 22, 2011**
- Meeting with Bhopal Review Team
 - Interview with Bania Bai and relatives
 - Interview with Duna Bai (ASHA), Vyapari Bai's mother-in-law, and other relatives
 - Visit to Women's Hospital and Labour Room
 - Visit to District Hospital
 - Discussions with Dr. Kumavat, Dr. Choyal
 - Visit to Chhajwani village – Meeting with Nani Bai's relatives
 - Visit to Borla Village – Meeting with Pinu Bai's family
 - Meeting with Parvati Yadav, ANM
- January 23, 2011**
- Visit to CHC, Pati – Meeting with Uma Sharma (LHV), Dr. Kadam (MO)
 - Visit to Sawariya Pani – Meeting with Baisi Bai's family
 - Visit to Bokrata, PHC – Meeting with Dr. Arya, Meeting with Chamki Bai (ASHA) (Vyapari Bai's mother), and Prem Pawar
 - Meeting with Balta Bai and relatives
 - Visit to Osada Village – Meeting with Vyapari Bai, Durga Bai's mother
- January 24, 2011**
- Visit to Bondwada Village – Meeting with Garli Bai's relatives
 - Meeting with Dr. Savner (CS), Dr. Malvi (Paediatrician), Dr. Deepak Mahauria (Anaesthetist)
 - Visit to the Blood Bank – Meeting with Dr. Bhavsar
 - Visit to the Operation Theatre and meeting with the OT Nurse and other staff
 - Visit to Maha Mrityunjay Hospital
 - Meeting with Madhuri, Jagrit Adivasi Dalit Sangathan
 - Meeting with SATHI team - Sant Mahato, Rakesh, Ajay Singh

Annexure 2

List of documents reviewed

A. Documents submitted by SATHI-JADS

1. Detailed Case Records
 - a) Vyapari Bai, Maternal Death due to medical negligence, November 27, 2010
 - b) Balta Bai, Medical Negligence, December 7, 2010
 - c) Bania Bai, November 11, 2008
2. Memorandums submitted by Duna Bai etc. JADS
 - a) Memorandum to the Collector of Barwani, by Duna Bai, Bilati Bai, Jagrit Adivasi Dalit Sangathan on December 12, 2010
 - b) Memorandum to the Collector and Superintendent of Barwani, by Duna Bai, Bilati Bai, Jagrit Adivasi Dalit Sangathan on January 12, 2011
3. Investigation Reports
 - a) Five years of NRHM-JSY and more than a decade of RCH: continuing maternal deaths in Barwani and MP, by Dr. Abhay Shukla (JSA), Dr. Indira Chakravarthi and Rinchin, January 8, 2011
 - b) Vyapari Bai, JADS, January 12, 2011
 - c) Vyapari Bai, November 29, 2010
4. Human Rights Watch, India: Drop Charges Against Maternal Death Protesters, January 10, 2011
5. Bhopal IANS: Over 3000 tribal women demonstrate in Madhya Pradesh, January 14, 2011
6. Data
 - a) Children's Death in District Hospital, Barwani and for Barwani District (April-November 2010)
Source: RCH-NRHM office, Bhopal
 - b) Children's Death 0 to 5 years (January 4, 2010 to December 12, 2010)
 - c) Cost of Medicines and Consultation Charges
7. Drug Store List
 - a) January 4, 2010 to December 27, 2010
 - b) Women Ward Drug Supply List September 1, 2010 to November 30, 2010

8. Government Maternal Death Review, April to November 2010
9. List of Referrals to Indore, April to November 2010
10. List of Maternal Deaths in District Hospital, April to December 2010
11. Facility based Maternal Death Review Format, April 1 to November 29, 2010
12. List of Doctors in District and District Hospitals (Barwani)
13. Memorandum to Health Secretary (Madhya Pradesh) and Mission Director, (NRHM, Bhopal) by JADS on January 1, 2011
14. Report on Corruption charges at District Hospital by Joint Director, JADS Memorandum on August 4, 2008
15. Maternal Health PIP 2010-11
16. Press Clippings related to maternal deaths in Bhopal, Barwani and Indore from October 28, 2010 to January 23, 2011. Five articles in English Newspaper and 40 articles in Hindi Newspaper
17. Case studies (17) compiled by SATHI team, Barwani
18. Audit Reports
 - a) Deendayal Antodaya Yojana by Civil Surgeon Office, Barwani, April 15, 2009
 - b) Deendayal Antodaya Yojana by CMHO Office, Barwani, May 2, 2009
19. Schemes
 - a) Schemes of Deendayal Antodaya Yojana
 - b) Guidelines of Deendayal Antodaya Yojana, NRHM Office, Bhopal, May 22, 2009
20. Janani Express Yojana (District Hospital, Barwani)
21. Guidelines for Janani Suraksha Yojana
 - a) CMO, Barwani, July 13, 2006
 - b) CMHO Office, Barwani, November 21, 2006
 - c) District Hospital, Barwani, February 5, 2007
22. Study Report on Janani Suraksha Yojana Evaluation Phase I (Draft), Barwani District, Madhya Pradesh, April 24 to May 2, 2010. NHSRC
23. Performance Audit of NRHM (<http://www.mohfw.nic.in/nrhm.htm>)
24. Janani Sahayogi Yojana (<http://www.health.mp.gov.in/>)

B. Other material referred

1. Verbal Autopsy Formats
 - a) Format for Maternal Deaths
2. NHSRC MP-Barwani (Analysis 2009-10 from HMIS)

Annexure 3

Case Record Review

Review of case records of women who died in the District Hospital
Verbal Autopsy conducted by investigating team

S. No.	Name and demographic details	Date and time of admission	Date and time of death	Duration of hospital stay	Course in hospital and treatment given as per case record	Reviewer's remarks
1.	Vyapari Bai, 22 years, W/O Khaliram, Village Ban. Scheduled Tribe Primigravida, 9 months amenorrhoea	27/11/2010 1:30 PM	29/11/2010 5:10 AM	39 hours, 40 min	<ul style="list-style-type: none"> Referred from CHC, Pati with a BP record of 140/100 mm Hg. Admitted in DH with diagnosis of eclampsia. At admission, BP 160/100 mm Hg, uterine height 36 weeks, Fetal heart recording not legible, PV finding not legible. Started on anti hypertensives (Methyl dopa, nifedipine) given 10% glucose and Inj MgSO4 14 gms loading dose. Investigations - Haemoglobin 8 gms/dl, Blood group A negative On 28/11/2010 - BP 160/110 mm Hg, given Nifedipine sublingually, 10% glucose and sent outside for ultrasound. Ultrasound showed 32 weeks pregnancy with a viable foetus with expected weight of 2.1 kg. At 11 PM 28/11/2010, C/O breathlessness, BP 160/110 mm Hg, Chest clear. Given intranasal oxygen and 10% dextrose IV, referred to 	<ul style="list-style-type: none"> Standard management of eclampsia includes control of hypertension through use of anti hypertensives, control of convulsions through use of Inj MgSO4 and delivery of the baby as soon as possible. In this case, while anti hypertensive medications were given, it is not clear from the case records whether adequate doses were used - BP continued to remain high throughout the hospital stay. Similarly, while Inj MgSO4 loading dose is mentioned, it is not clear from the case record whether maintenance doses were given at all. (During the verbal autopsy, Vyapari Bai's mother said no further injections in

MYH, Indore, consent taken from relatives that they want to continue treatment in DH, Barwani. Also noted that attendants of patient refused oxygen and IV fluids.

- At 5:10 AM, 29/11/2010 - declared dead.
- Postmortem report

a large syringe were given after the ones at admission).

- No attempts at delivery either by induction of labour or caesarean section as is standard practice in management of eclampsia were attempted during the whole duration of hospital stay of almost 40 hours.
- Her relatives mentioned that she continued to have convulsions in the hospital - this is however not recorded in the case records. In spite of her poor general condition, Vyapari Bai was sent outside in a private vehicle for an ultrasound which would have no bearing on management.
- From the verbal autopsy, it was found that she had had no antenatal check ups which would have helped in early diagnosis of pre eclampsia - this in spite of both her mother and mother in law being ASHAs.
- After the onset of eclampsia, Vyapari Bai was first brought to a PHC and then a CHC before reaching the DH. At neither of these places was she given Inj MgSO4 or anti hypertensives.

2.	Durga Bai, 28 years, W/O Jagan, Village Semli Scheduled Tribe G5P4, 9 months amenorrhea	26/12/2010 3:50 PM	26/12/2010 7:45 PM	3 hours, 55 min	<ul style="list-style-type: none"> • Referred from CHC, Pati at 2:30 PM, 26/12/2010 with a diagnosis of “breech presentation with lock head - whole foetus comes out but head not comes out and there is no pains”. BP “normal” • At admission in DH, Barwani - Pallor excessive, P/A - Uterus 24 weeks size, PV - fully dilated, aftercoming head obstructed. Given IV fluids (Ringer’s Lactate) and antibiotics. Record of no male relatives being available with woman, therefor to arrange for free blood. Investigations - Hb - 2.0 gms/dl, Blood group O Positive. • Record of “baby out at 5:35 PM, Placenta out 5:40 PM, Weight 2.8 kg, IUD” • At 6:30 PM, patient C/O excessive bleeding PV. On examination Pallor +++, pulse feeble, BP not recordable, P/A Uterus well contracted, PV No active bleeding at present. Given Oxygen, Inj Hemaccel and RL with 2 amp oxytocin, Vaginal packing done. Record that nobody was with her, only one lady. • At 7 PM, severe anaemia - request for one unit blood urgently, IV Dopamine started. • At 7:15 PM, general condition same, catheterization done. • At 7:30 PM - No respiration, No heart sounds, one unit blood issued and started 	<ul style="list-style-type: none"> • This was a breech delivery with difficulty in delivery of aftercoming head since at least 2:30 PM. The baby was delivered only 1 hour 45 min after admission in the DH. There is no record of any definitive attempts to deliver the head as is standard practice in such cases, for example use of forceps. The verbal autopsy revealed that the nurse tried to force the baby out by pushing heavily on the abdomen (“Dhakka de kar”) - this in itself could be extremely dangerous. From the verbal autopsy, it also seemed that the baby might have had a hydrocephalic head - this is not documented in the case sheet - if it were actually so, then standard procedures like draining the fluid from the head to facilitate delivery do not seem to have been followed. • Durga Bai was severely anaemic and also seems to have had postpartum haemorrhage. No attempts were made to treat the anaemia aggressively - the case record says that male relatives were not present to
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					<ul style="list-style-type: none"> At 7:45 PM - declared dead 	<p>justify this - blood was started only after 3 hours 40 min of admission and 1 hour 55 min after delivery.</p> <ul style="list-style-type: none"> Postpartum haemorrhage was detected only one hour after admission - in a woman with such severe anaemia; it would be standard practice to watch for PPH closely. Also, no documentation of Active Management of Third Stage of Labour was being done to prevent PPH. From the verbal autopsy, she had not had any kind of antenatal care. The severe anaemia was not picked up antenatally and even routine iron supplements were not given. This was Durga Bai's 5th pregnancy (according to verbal autopsy, it was the 7th). This brings up issues regarding information on and access to safe contraception.
3.	Pinu Bai, 24 years W/O Vijay, Village Borlai Scheduled Tribe	08/11/2010 3:45 PM	10/11/2010 10:30 AM	42 hours, 45 min	<ul style="list-style-type: none"> Was seen in DH OPD on 8/11/2010 - Primigravida, 9 months pregnancy, H/O fever, O/E Icterus ++, Uterus 36 weeks size, Advised blood and urine investigations and ultrasound abdomen. Investigations - Hb - 9.3 gms/dl, Blood group AB positive, Serum 	<ul style="list-style-type: none"> Pinu Bai was very severely jaundiced by the time she reached the DH - this by itself made her prognosis very poor. The verbal autopsy revealed that she had received some antenatal care -

					<p>bilirubin total 20.5 mg/dl, Malarial parasite - Pl V R seen, Widal negative, Aus antigen negative, Urine bile salt and bile pigment positive. Ultrasound - 36 weeks pregnancy with viable foetus and oligohydramnios (AFI<6 cm)</p> <ul style="list-style-type: none"> • Advised admission based on the investigations - started on quinine IV. On 10/11/2010 - Normal delivery at 9:30 AM, Placenta at 9:35 AM, IUD, Female, 2 kg, No PPH. • On 10/11/2010 10 AM - General condition poor, Icterus +++, Pulse 90/min, BP 90/60. Started on IV fluids, Inj dexamethasone. Asked for urgent medical consultation. • At 10:30 AM - Patient declared dead. 	<p>but this was restricted to receiving tetanus toxoid injections. She also had fever earlier in the pregnancy. In a malaria high prevalence area, malaria had not been picked up earlier - this could have changed the course of events.</p>
4.	Nani Bai, 25 years W/O Amar Singh Village Sajwani Scheduled Tribe P3	01/11/2010 1:10 PM	01/11/2010 9 PM	7 hours, 50 min	<ul style="list-style-type: none"> • Admitted with H/O home delivery in the morning that day and had convulsions and became unconscious. At admission, General condition very poor, Unconscious, gasping, pulse not palpable, BP not recordable, P/A - Uterus well contracted, Bleeding PV WNL. Started on IV crystalloids and colloids, Inj Hydrocortisone and Dexamethasone, and Inj Cefotaxime. Was referred to higher centre, but relatives signed that they are unable to do so. One unit blood given at 3:45 PM. 	<ul style="list-style-type: none"> • This was a case of home delivery with H/O convulsions postnatally. Nani Bai was admitted in shock. The management in such a scenario would be to manage the shock and also to definitively manage the convulsions. Any convulsions during pregnancy or postpartum period are taken and treated as eclampsia unless proven otherwise. In this particular case, no management for eclampsia was done.

	Garli Bai, 30 years W/O Dhaniya Village Bondwada Scheduled Tribe G3P2	16/07/2010 11:50 PM		3 hours 10 min (till referral)	<ul style="list-style-type: none"> Investigations - Hb 11.2 gms/dl, B Positive, Blood sugar - 84 mgs/dl, Blood urea 28 mgs/dl, S Bilirubin total 0.4 mgs/dl, Widal negati, Malarial parasite negative Through complete duration of hospital stay, pulse and BP remained not recordable and patient continued to be unconscious and gasping. Inj Chloroquine was started at 5:30 PM. At 9 PM, she was declared dead. Admitted with diagnosis of hand prolapse with severe anaemia and previous LSCS. At admission - Pallor +++, pedal edema ++, BP 120/80. P/A Uterus 36 weeks, Transverse lie, No fetal heart sounds, PV Os fully dilated, hand prolapse, blood stained urine in catheter. Started on IV fluids, planned to prepare for LSCS. Investigations - Hb 10 gms/dl, B Negative One unit blood issued on 17/7/2010 at 1:45 AM and started. At 2:40 AM - General condition not good, Pulse 100/min, BP 120/80. Referred to Indore Medical College Hospital as further B negative blood group not available in blood bank. 	<ul style="list-style-type: none"> Management of shock also seems to have been inadequate During the whole duration of hospital stay of almost 8 hours, Nani Bai never recovered from shock. How much fluids were given is not clear from the case sheet - only one pint each of RL and Hemaccel and one unit blood are evident from the orders.
5.					<ul style="list-style-type: none"> This case is recorded as a referral in government records and not as a maternal death. However, verbal autopsy revealed that subsequent to the referral, the woman was taken back home as the ambulance was not made available and the family could not afford a private vehicle to Indore. Garli Bai was subsequently brought back to the DH the next morning where the doctor and other staff refused to see her citing that she had already been referred and she died in front of the DH after waiting for one hour in the vehicle she was brought in. This was a case of previous LSCS who had been admitted with a transverse lie with a prolapsed hand. The management in such a 	

<p>scenario would be to immediately deliver the baby by caesarean section as otherwise the uterus would rupture due to obstructed labour - the danger was even more in this particular case due to the previous scar in the uterus. While an initial plan for caesarean section was made at admission, subsequently lack of availability of the particular blood group was cited as reason for referral 3 hours later. Given that the referral centre was 4 hours away by road, and that the District Hospital is a fully functional FRU, this referral is totally inappropriate. Why the ambulance was not made available is not clear. Even so, no accountability was put in place to ensure that the woman reached the next referral centre safely. The subsequent course of events as understood from the verbal autopsy are tragic.</p> <ul style="list-style-type: none"> • The verbal autopsy revealed that she had not had any antenatal care - the transverse lie in a woman with previous LSCS could have been picked up earlier in that case. 						
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Verbal autopsy not conducted by investigating team

S. No.	Name and demographic details	Date and time of admission	Date and time of death	Duration of hospital stay	Course in hospital and treatment given as per case record	Reviewer's remarks
1	Kavita, 24 years W/O Dinesh, Village: Badgyar Scheduled Tribe Postnatal 2 days	05/04/2010 1 PM	06/04/2010 2 PM	25 hours	<ul style="list-style-type: none"> Referred from Kukshi on 05/04/2010 at 11:45 AM as having had home delivery 2 days back with stillbirth and had jaundice and H/O convulsions and fever for 10 days (not completely legible) At admission in DH, Pallor ++, Pulse 100/min, BP 100/60, respiration 50/min, No bleeding. Started on 10% dextrose, antibiotics. Investigations - Hb 8 gms/dl, AB Positive, Total serum bilirubin 8.8 mg/dl, Aus antigen negative, malarial parasite not done One unit blood transfused on 5/4/2010 at 2:45 PM. At 9:30 PM, advised referral to Indore medical college, however relatives unwilling to do so. Started on Inj L ornithine At 2 PM on 6/4/2010 declared dead. 	<ul style="list-style-type: none"> While the history is not very clear, it seems that Kavita had had fever antenatally and had developed convulsions postnatally. She also had severe jaundice. In a malaria high prevalence area, this should have been tested in anyone presented with fever and jaundice and convulsions. This was not done. The clinical diagnosis is not mentioned anywhere in the case record. Use of medicines like L ornithine in such a scenario is questionable. In the absence of an alternative diagnosis, convulsions were also not treated as eclampsia. The fever and jaundice were also not picked up antenatally - with such complications, Kavita had a home delivery with no access to emergency obstetric care.
2	Ramti Bai, 21 years W/O Rakesh Village Chichwaniya Scheduled Tribe Primigravida	12/04/2010 11 AM	12/04/2010 4 PM	5 hours	<ul style="list-style-type: none"> Referred from Dabri (PHC?) with full term pregnancy and convulsions on 12/04/2010 at 8 AM. Treatment given - Not legible Admitted in DH with H/O 9 months amenorrhea and 9-10 	<ul style="list-style-type: none"> This was a case of antepartum eclampsia. While Inj MgSO4 was given as per protocol, whether control of hypertension was achieved is not clear as there is only one subsequent BP recording after admission (12/04 2010, 1:10 PM - 140/100 mm Hg).

				<p>episodes of convulsions. On examination, General condition poor, Unconscious, febrile, Pallor ++, Pulse 120/min, BP 170/110 mm Hg, Respiration 56/min, P/A Uterus 34 weeks, Cephalic presentation, Fetal heart not localized, PV 7-8 cms dilated, 80% effaced, Membranes + at -3 station. Patient referred to Indore medical college, however relatives expressed inability to do so.</p> <ul style="list-style-type: none"> Started on Oxygen intranasal, IV 10% dextrose, IV mannitol, Inj Mg SO4 loading and maintenance doses 6 hourly, Inj Diazepam SOS and antibiotics, sublingual nifedipine SOS . Investigations In DH - Hb 9.8 gms/dl, A Positive, Private lab Barwani - S Creatinine 1.37 mgs/ dl No attempts at augmentation of labour documented At 4 PM - patient declared dead. 	<ul style="list-style-type: none"> Ramti Bai was in active labour at admission - standard practice would have been to augment labour to hasten delivery - this was not followed. Details regarding whether she received antenatal care are not available. Early detection of pre eclampsia would have prevented eclampsia. 	
3	Heera Bai, 20 years W/O Ditu Singh Village Dedli Bhil G3P0A2	22/04/2010 2 AM	22/04/2010 2:30 AM	30 min	<ul style="list-style-type: none"> Referred by private obstetrician, Manavar at 00:35 AM, 22/04/10 with excessive bleeding PV and pain. On examination there- pulse 72/min, BP 90/70 (not clearly legible), Uterus 28 - 30 weeks, Fetal heart not localized, PV Os 4-5 cms dilated, ?Placenta felt, Bleeding ++ 	<ul style="list-style-type: none"> Heera Bai was brought in shock to the DH and died within half an hour of admission. The antepartum haemorrhage seems to have been caused by placenta previa. Whether any initial management of the shock was done at the private centre is not clear.

4	Devkunwar, 30 years W/O DharamSingh Village: Hongaon Scheduled Tribe G4P3	13/05/2010 1:15 AM	13/05/2010 7:45 AM	6 hours 30 min	<ul style="list-style-type: none"> • At admission in DH, general condition not good, gasping, pedal edema ++ Pulse 110/min, BP not recordable, Uterus 28 - 30 weeks, no fetal heart sounds, PV - Os 4-5 cms, (rest not legible), started on colloids and crystalloids, hydrocortisone, dexamethasone • Declared dead at 2:30 AM. 	<ul style="list-style-type: none"> • This was a case of transverse lie and hand prolapse needing immediate caesarean section. Devkunwar was in this fully functional FRU for more than 6 hours without any attempt at operative delivery. To refer her from here for an uncomplicated caesarean section to a centre 4 hours away would be unacceptable. She probably had a ruptured uterus while waiting for this period of time in the District Hospital as a final event.
				<ul style="list-style-type: none"> • Admitted with H/O 9 months amenorrhea and hand prolapse. At admission BP 100/60, P/A Uterus 34 weeks, fetal heart not legible, PV Os fully dilated, fully taken up. Started on IV fluids and antibiotics • Investigations - Hb 9.6 gms/dl, B Positive • Consent taken at 2 AM from relatives about need for surgery and that they will take her to Indore in the morning. • At 6:30 AM record of patient attendant's wanting to shift to Indore. 7:15 AM - patient irritable, started on oxygen, Inj hydrocortisone • 7:35 AM - Record says "attendants refused treatment", "covered the bai with clothes". Pulse not palpable, no heart sounds • Declared dead at 7:45 AM. 		

5	Bondari, 25 years W/O Rumala Village Kotba Scheduled Tribe G2P1	17/6/2010 4 PM	17/6/2010 4:30 PM	30 min	<ul style="list-style-type: none"> • Referred from ? (no date and time on referral slip) with 9 months amaenorrhea and difficulty in breathing for 2 days. On examination Pulse 80/min, BP 110/80 mm Hg, P/A - Uterus 36 weeks, PV Os 1 finger dilated • At admission in DH, general condition poor, gasping, unconscious, temp - 104 degree F, pulse 110/min, BP not recordable, Pallor +++, P/A Uterus 30-32 weeks • Started on oxygen, 5% dextrose, antibiotics, Inj Dexa methasone. • Investigations - Hb 4 gms/dl, Total serum bilirubin 4.2 mgs/dl, B Positive • Declared dead at 4:30 PM. 	<ul style="list-style-type: none"> • Bondari came in a critical stage to the DH. She had severe anaemia and this was complicated by jaundice and high grade fever, pointing perhaps to malaria. While there wasn't any time at the DH for any definitive management, this brings about questions regarding antenatal care - no details are available regarding whether the woman received any form of care antenatally.
6	Sangeeta, 25 years, W/O Mahesh, Bheslay Scheduled Tribe G2P1	26/07/2010 9:45 AM	26/07/2010 11 AM	1 hour 15 min	<ul style="list-style-type: none"> • Admitted in Medical ward with pain (test not legible), H/O amaenorrhea for 6 months. On examination, general condition poor, severe anaemia. Started on IV fluids and antibiotics • 10:05 AM - H/O fever 6-7 days, General condition very poor, Pulse 140/min, BP 120/80 mm Hg, Pallor +++++. Icterus ++, P/A Uterus 20 weeks. Started on oxygen, planned for blood transfusion, advised referral to Indore Medical College. However, relatives expressed inability to do so. 	<ul style="list-style-type: none"> • Sangeeta was admitted with severe anaemia and jaundice in early pregnancy and died in about an hour after admission. While there wasn't any time at the DH for any definitive management, this brings about questions regarding antenatal care - no details are available regarding whether the woman received any form of care antenatally.

7	Kushiya Bai, 30 years W/O Bhapla Sustrikheda Scheduled Tribe	30/08/2010 11:35 PM	31/08/2010 7:40 AM	7 hours, 5 min	<ul style="list-style-type: none"> • 10:45 AM - deteriorated, pulse feeble, BP not recordable, gasping • Declared dead at 11 AM. • Referred from Menimata PHC - admitted there at 1:15 AM and referred at 11:30 AM 30/08/2010 - no further details in referral slip. • Admitted in DH with amaenorrhea for 9 months, and bleeding PV. At admission. General condition poor, cold and clammy extremities, Pallor +++, Pulse 112/min, BP 70/60 mm Hg, P/A Uterus 34 weeks, Cephalic presentation, FHS not localized, Bleeding +, PV not done • Initially referred to Indore and referral letter given, subsequently treatment started in DH-IV colloids and crystalloids, antibiotics, and orders for preparation for LSCS for placenta previa and severe anaemia. • Investigations - Hb 7 gms/dl, AB Positive, 1 unit blood issues at 12:50 AM. • Normal delivery at 6:30 AM 31/08/2010 - Female, 3 kg, IUD, Placenta delivered at 6:35 AM. • Postnatal - General condition poor, gasping, Pulse BP not recordable, Cold and clammy, Pallor +++, P/A Soft, Bleeding Average, Urine 		<ul style="list-style-type: none"> • This was a case of antepartum haemorrhage admitted in shock. Kushiya Bai was referred from a PHC; her condition there and management before referral are not mentioned. While plans for caesarean section were made for placenta previa, this was not done for 6 hours, by which time she delivered normally. There is no documentation to show if there was postpartum haemorrhage. The postnatal course of severe shock suggests that Kushiya Bai lost a large amount of blood either during the waiting time or postnatally. How much fluids were given is also not clear from the case records - only 4 pint of crystalloids and 2 pints of colloids and one unit of blood are charted in the orders for the whole period of hospital stay.
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					output 300ml. On oxygen and IV fluids and crystalloids. Again referred to Indore, but relatives expressed inability to do so. • Declared dead at 7:40 AM.	
8	Shivkunwar, 20 years W/O Narayan Village: Ambakhoda Bhil LMP: 2/9/2010 (Not pregnant?)	13/09/2010 12:35 PM	14/09/2010 1:20 AM	12 hours 45 min	<ul style="list-style-type: none"> Investigation report (?Private lab) - 06/09/2010 - Hb 4.5 gms%, A Positive Seen in DH OPD on 13/09/2020 - Pallor +++, Advised admission and arrange for 3 units blood Investigations in DH - Widal Positive, Malaria Negative One unit blood transfused on 13/09/2010 At 1:20 AM 14/09/2010 - called to see patient as she was not breathing - Found and declared dead. 	<ul style="list-style-type: none"> This was a case of severe anaemia. There are no notes in the case record to determine the course of events. The final event is also not clear. It is also not clear if the woman was pregnant at all as the last menstrual period is mentioned as 11 days before admission.
9	Tulsi Bai, 32 years W/O Garla Village: Jhamar Scheduled Tribe G8 P7	13/09/2010 10 AM	14/09/2010 10:15 PM	36 hour 15 min	<ul style="list-style-type: none"> Referred from CHC, Pati on 13/09/2010 with H/O amaenorrhea for 9 months and abdominal pain for 4 days. On examination - Severe anaemia, BP 130/80 mm Hg, General condition poor At admission in DH, Pallor +++, Pulse 92/min, BP 130/70 mm Hg, P/A - Uterus 34 weeks, Oblique lie, Abdominal distension +, FHS +, PV - Os closed. Investigations - Hb 4 gms/dl, AB Positive, Blood urea 80 mgs/dl Admitted, started on IV fluids, antibiotics, 1 unit blood given. No further AB Positive available in blood bank on 14.09.2010 at 12:25 PM. 	<ul style="list-style-type: none"> Tulsi Bai also had severe anaemia in third trimester of pregnancy. She was transfused one unit blood - subsequent units of that particular group were unavailable. The final event seems to have been cardiac failure due to severe anaemia. In this case, it is unclear why she was given IV fluids at all - 4 pints of crystalloids are charted in the case records. While she was hemodynamically stable, giving extra fluids in such severe anaemia could only push her further into cardiac failure.

10	Nanki Bai, 20 years W/O Sursingh Village: Undala Primigravida	19/09/2010 12:30 PM	20/09/2010 8:05 AM	19 hours 35 min	<ul style="list-style-type: none"> • Sent outside for USG abdomen on 13/09/2010 - 35 week single live fetus, mild splenomegaly • 14/09/2010 – 6:20 PM - general condition poor. Asked for urgent medicine check up. Advised referral to Indore. Consent taken from relatives as they were unable to take her to Indore. Given Frusemide and Deriphylline. • Declared dead at 10:15 PM. 	<ul style="list-style-type: none"> • It is also not clear why she was sent outside for a scan as this would not change management at this point. • There are no details regarding antenatal care - whether a woman with such severe anaemia was detected and given any treatment for it is not available. • This was also her 8th pregnancy - this again raises issues of information about and access to safe contraception.
					<ul style="list-style-type: none"> • Referred from CHC, Dahi to CHC Kukshi on 19/09/2010 at 8 AM. Admitted there at 10 PM on 18/09/2010. Referred as Full term pregnancy with 1 Finger dilation • Seen at CHC, Kukshi - Pallor ++, BP: 130/96 mm Hg, P/A Uterus 36 weeks. PV - Os 1 Finger dilated. Referred to DH, Barwani (Time not mentioned) • At admission in DH, BP 140/110 mm Hg, P/A Uterus 34 weeks, Cephalic, FHS +. PV - Os 2 Fingers dilated. • Started on Inj Mg SO4 loading and maintenance doses, Nifedipine 5 mg Sublingual SOS, IV fluids, antibiotics. • Investigations - Hb 6 gms/dl, A Positive. • 19/9/10 - 6:15 PM - BP 140/100 mm Hg, Os 3-4 cms. Given 1 unit blood 	<ul style="list-style-type: none"> • Nanki had been admitted and referred from a PHC after admission overnight there. Whether the severe preeclampsia was picked up there is not evident. Even at the CHC, while BP was measured, no action seems to have been taken on it. • In the DH, Inj Mg SO4 was given as per protocol for severe pre eclampsia. However, whether anti hypertensives were given adequately and in what dosage and frequency is not clear from the case record - the BP continued to remain high throughout the course of hospital stay. • No augmentation of labour or plan for caesarean was done in spite of slow progress of labour and duration of stay of almost 20 hours.

11	Rajkanta, 25 years, W/O Mukesh, Village: Ringnoi G2P1	19/09/2010 11:10 AM	19/09/2010 2:50 PM	3 hours 40 min	<ul style="list-style-type: none"> • 20/09/2010, 7 AM- General condition poor, pallor +++ , BP 170/110 mm Hg, FHS not localized, PV - Os 6-7 cms, Membrane +, Presenting part at brim • 8 AM - Patient gasping, Pulse, BP not recordable • Declared dead at 8:05 AM. 	<ul style="list-style-type: none"> • No details are available regarding antenatal care and whether BP checks were done as part of this.
					<ul style="list-style-type: none"> • Referred from CHC Kukshi on 19/09/2010 at 10 AM with bleeding PV. • At admission in DH, general condition poor, Pallor +++, Pulse fast very feeble, BP not recordable, P/A Uterus 34 weeks, Cephalic, PV No active bleeding, fully dilated. Started on IV crystalloids and colloids, oxygen, Inj Hydrocortisone • Investigations - Hb 7.6 gms/dl, B Positive • Normal delivery at 11:45 AM, Placenta delivered at 11:50 AM. Male, IUD, 2.5 kg. • Postnatal - General condition poor, Pallor +++, Pulse feeble, BP not recordable, P/A Uterus well contracted, Bleeding average. Given oxygen, IV fluids, one unit blood transfused. • At 2:10 PM, patient gasping, pulse and BP not recordable • Declared dead at 2:50 PM. 	<ul style="list-style-type: none"> • This was a case of antepartum haemorrhage with anaemia admitted in shock. Whether shock was managed adequately is not clear - according to the case records, only 5 pints of crystalloids and one unit blood are ordered. Throughout the course of hospital stay, Rajkanta continued to remain in shock. • She was referred from CHC Kukshi to the DH with bleeding PV - whether initial management for blood loss like starting a line and fluids was done there before referral is not clear. • Antenatal care and detection and treatment of anaemia are not documented.

12	Sayeeda, 21 years W/O Rafiq Village: Thikri Muslim Primigravida	03/10/10 12:20 AM	03/10/10 1:20 PM	13 hours	<ul style="list-style-type: none"> Referred from CHC Thikri on 2/10/10 at 10:20 PM as ANC with full term with breech presentation At admission in DH, H/O amenorrhoea and pains, P/A Uterus 36 weeks (rest not legible), PV - cervix one finger. Given one unit blood At 6:45 AM - C/O fever. Investigations - Hb 6 gms/dl, B Negative, Widal TO ++, TH ++, Malaria - PVT seen. 10:55 AM - Platelets 35000. General condition very poor, referred to Indore and given referral letter. Note to Civil Surgeon for free ambulance sent. 1 PM - No pulse/BP, Declared dead at 1:20 PM. 	<ul style="list-style-type: none"> Sayeeda had fever and tested positive for both malaria and typhoid. She also had very low platelet count. What the final event was is unclear. It is also not clear whether she was in labour at all.
13	Janu, 21 years, W/O Dinesh Village: Nanwaniya Scheduled Tribe	14/10/2010 8:10 AM			<ul style="list-style-type: none"> Admitted with severe anaemia and APH. AY admission Pallor +++, BP 100/60, P/A - Uterus 22 - 24 weeks, Os 4 cm, Bleeding ++ Started on IV fluids with oxytocin, antibiotics Investigations - Hb 6.6 ms/dl, B Positive Complete abortion on 14//10/10 at 4 PM - Female, 700 gms Given 2 units blood No further notes on discharge/death 	<ul style="list-style-type: none"> This was a case of severe anaemia. No details are available regarding antenatal care and treatment of anaemia. Subsequent course of events after the abortion are not recorded - this case is however on the list of maternal deaths provided by the government.

14	Sunita, 22 years W/O Hiralal, Village: Ghanora, Bhil Primi G4P3	15/10/2010 9:05 PM	1610/2010 2:40 AM	5 hours, 35 min	<ul style="list-style-type: none"> • Seen by private practitioner, Dhamnov on 12/10/10 and 14/10/10 - writing completely illegible. Investigations (12/10/10) - Hb 7.8 gms/dl, Plasmodium falciparum Positive by Antibody card test, A Positive • Referred by private physician, Manawar on 15/10/10 as 9 months amaeorrhea with anaemia to DH, Barwani • Admitted in Female Medical Ward in DH, Barwani with C/O fever, bodyache and ghabrahat. At admission, stable, oriented and conscious. Started on IV fluids, antibiotics, rest not legible. Also started on Inj Lariago after gynae consult. One unit blood transfused. • At 2:25 AM - found gasping. Cold and clammy, Pulse 120/min feeble, BP 100/60 - Started on oxygen, IV fluids, Inj Hydrocortisone. • Declared dead at 2:40 AM. 	<ul style="list-style-type: none"> • This was a case of anaemia and falciparum malaria. She was treated with chloroquine and one unit blood. No details are available from the case sheet to determine course of events and cause of death.
15	Koshiya Bai, 20 years, W/O Sanjay Village: Bhejedad Scheduled Tribe Primigravida	03/11/10 1:45 PM	05//11/10 8:45 AM	43 hours	<ul style="list-style-type: none"> • Referred by private hospital, Sindhwa on 03/11/10, Time not mentioned - according to referral note, patient brought without a referral note from PHC to the private hospital. H/O 8 months amenorrhea with ? fever, headache, epigastric pain, under treatment at PHC since 3 days. H/O 4 episodes of generalised 	<ul style="list-style-type: none"> • According to the referral note from the private practitioner, Koshiya Bai had been admitted in the PHC for more than 3 days - whether hypertension and the signs of imminent eclampsia like headache and epigastric pain reported her were picked up and treated appropriately at the PHC is not clear.

16	Kala, 28 years, W/O Mohaniya, Village: Kalakhet Bhilala 4th pare	05/11/10 7:35 PM	07/11/10 5:10 AM	33 hours, 35 min	<p>tonic clonic convulsions since that morning. On examination - drowsy, Pallor+++ , Edema ++, Pulse 150/min, BP 160/120 mmHg, Uterus 34 weeks, Fetal bradycardia, PV - Os I finger loose, presenting part high, mobile. Given Inj MgSO4 4 gms IV and referred.</p> <ul style="list-style-type: none"> • At admission in DH, General condition poor, disoriented, BP 160/100 mmHg, Uterus 32 weeks, Fetal heart (not legible) - Os closed. Started on Inj Mannitol, IV fluids, antibiotics, Inj Mg SO4, Inj Diazepam, Nifedipine • Investigations - Hb 6.6 gms/dl. Givn 1 unit blood on 3/11/10 at 6:10 PM. • Normal delivery on 4/11/10 at 9:20 AM, placenta delivered 9:25 AM. Male, 2 kg, IUD. Postnatal - BP 150/100 mmHg. Inj MgSO4 given and Cap Nifedipine 5 mg given twice a day. • At 9 PM, 4/11/10 - C/O convulsions, Pallor +++, Pulse 100/min, resp 38/min, BP 140/90 mm Hg. • At 8:45 AM, 5/11/10 - declared dead. 	<ul style="list-style-type: none"> • While Inj MgSO4 was given in the DH, whether adequate maintenance doses were given is not clear from the case record. The woman continued to have convulsions even postpartum. • Also, BP dos not seem to have been controlled adequately - BP continued to remain high even several hours after admission. • The role of giving mannitol and diazepam while the patient is already on MgSO4 is not clear. • No augmentation of labour is documented to hasten delivery of the foetus. 	<ul style="list-style-type: none"> • Kala was clinically diagnosed to have severe anaemia and referred from the CHC - the Hb as tested in the CHC points to mild anaemia. • Reason for the intrauterine death is not clear.
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17	Sanju, 21 years, W/O Rajendra Village: Doliya, Scheduled Tribe Postnatal 14 days	09/11/2010 9:45 PM	10/11/10 9:15 AM	11 hours 30 min	<ul style="list-style-type: none"> Investigations - Hb 8.8 gms/dl, O Positive. Given 1 unit blood at 11:30 AM, 6/11/10. On 6/11/10, 3:10 PM, delivered normally, IUD Male, 2.5 kg, no PPH. 6/11/10 9 PM, C/O breathlessness. Respiration 46/min, pulse 100/min. Given oxygen, 10% dextrose IV, Inj deriphylline, Inj Hydrocortisone, Inj Dexamethasone. 7/11/10 5 AM, Gasping. declared dead at 5:10 AM. 	<ul style="list-style-type: none"> What the final event was is also not clear from the records. This was her 4th pregnancy - no details regarding antenatal care are available.
18	Niharika, 20 years, D/O Jagdish Village: Hadkibaidi Scheduled Tribe	12/11/2010 7:30 PM	12/11/2010 8:10 PM	40 min	<ul style="list-style-type: none"> Referred from CHC, Kukshi on 9/11/10, 5:30 PM as postnatal with fever and anaemia. Investigations - hb 6.2 gms/dl, PVT +ve. Admitted in DH with H/O delivery on 25/1010 and fever. Started on Inj Lariago. Given one unit blood. 10/11/10, 8:55 AM - attendant C/O <i>ghabrahat</i>. On examination - General condition poor, gasping, pallor +++++, Pulse feeble, not palpable, BP not recordable. Declared dead at 9:15 AM. Referred from Civil Hospital, Anjad on 12/1/2010 at 6:30 PM as menorrhagia with severe anaemia. Admitted in DH as unmarried girl with H/O LMP 3 days ago with bleeding PV. H/O epistaxis for which she received blood 	<ul style="list-style-type: none"> This was a case of anaemia and malaria in the postnatal period. The course of events and the cause of death are not clear from the case records.
					<ul style="list-style-type: none"> This case is recorded as menorrhagia with severe anaemia. She was admitted in a critical state and died within 40 min of admission. Whether Niharika had a bleeding tendency or was this a case of unsafe abortion 	

					transfusion 15 days ago. At admission, General condition very poor, unconscious, Cold and clammy, Pallor ++++. Pulse, BP not recordable, P/A Soft, no active bleeding <ul style="list-style-type: none"> Started on oxygen, IV fluids, antibiotics, IV dopamine. Referred to Indore, however relatives expressed inability to do so. <ul style="list-style-type: none"> Declared dead at 8:10 PM. 	cannot be made out clearly from the case sheet.
19	Idi Bai, 23 years W/O Than Singh Village: Nalwanya Scheduled Tribe 2nd para	16/11/2010 11:10 PM	17/11/2010 6:25 PM	19 hours, 15 min	<ul style="list-style-type: none"> Referred from Gandhwani, District Dhar on 16/11/2010 at 8:40 PM. At admission in DH, amenorrhea for 8 month, unconscious, general condition poor, BP 110/70 mm Hg, P/A Uterus 32 weeks. rest not legible. Started on 10% glucose, rest not clear, advised referral to Indore, but relatives unable to do so. Investigations - Hb 6 gms/dl. Seen by physician 17/11/2010 1:45 AM - H/O fever 3-4 days and unconsciousness for 1 days. Given IV mannitol, Inj Cefotaxime. Declared dead on 17/11/2010 at 6:25 PM. 	<ul style="list-style-type: none"> This was a case of fever and unconsciousness. The cause of this is not clear - there are no reports of investigations for malaria and typhoid attached with the case record. No inference regarding diagnosis and management can be made from this. Details regarding whether any antenatal care was given are unavailable.
20	Anka Bai, 22, years, W/O Madhu, Village: Jodayi	18/11/2010 11:40 AM	20/11/10 12:35 AM	36 hours, 55 min	<ul style="list-style-type: none"> Referred from CHC, Rajpur on 18/11/2010 at 10:30 AM. 6 months pregnancy with prolapse uterus and anaemia ++++. Hb 7 gms/dl 	<ul style="list-style-type: none"> While Anka Bai was referred from the CHC as 6 months pregnant, the records in DH mention that she is postnatal - which is correct is not

21	Subi Bai, 34 years W/O Pahadsingh Kumbhket Scheduled Tribe G6 P5	07/12/2010 12:40 PM	08/12/2010 1:45 AM	13 hours, 5 min	<ul style="list-style-type: none"> • At admission in DH, diagnosis of postnatal case with severe anaemia. General condition poor, Pulse 80/min, BP 100/70 mm Hg, pallor +++, Uterus 18 - 20 weeks. Started on IV fluids, antibiotics. • Investigations - Hb 8 gms/dl, O Positive, scan (private) - Bulky involuting uterus. • Same management continued. • At 12:30 AM, 20/11/2010 - found gasping, unconscious. Pulse 140/min, BP not recordable. Declared dead at 12:35 AM. 	<p>clear. The subsequent ultrasound shows an involuting uterus.</p> <ul style="list-style-type: none"> • She was admitted as a case of severe anaemia. While a request for blood has been sent according to the case sheet, no transfusion seems to have been made. Further course of events and cause of death are unclear.
					<ul style="list-style-type: none"> • Referred from CHC, Pati on 07/12/2010 as anaemia. • At admission in DH, general condition poor, BP 100/60 mm Hg, P/A Uterus 36 weeks. • Investigations Hb 3 gms/dl, B Positive • Advised referral to Indore, but relatives unable to do so. • Management illegible from case record. • At 1:15 AM, 8/12/2010 - General condition poor, lungs creps+ • Declared dead at 1:45 AM, 8/12/2010. 	<ul style="list-style-type: none"> • This was a case of severe anaemia in a grand multipara admitted in late third trimester - while details in the case record are not legible, she seems have had cardiac failure as evidenced from the lung creps. No blood seems to have been transfused during the course of hospital stay. • This case also brings up issues of antenatal care, and information on and access to safe contraception.

Review of referral letters of women who were referred from the District Hospital

S. No.	Name and demographic details	Date and time of referral	Indication for referral	Condition at the time of referral	Investigation reports	Treatment given	Referred to	Reviewer's remarks
1	Garli Bai, 30 years, W/O Dhaniya Borwada	17/07/2010 2:40 AM	Previous LSCS with severe anaemia with hand prolapse with threatened rupture of uterus	Pulse: 100/min, BP 120/80 mm Hg	Hb 7 gms/dl, B Neg,	-	MYH, Indore	Referring a woman with previous LSCS with obstructed labour and threatened rupture of uterus from a fully functional FRU to a facility 4 hours away is unacceptable. Further investigations in this case show that Garli Bai went home instead and died.
2	Manisha, 20 years, W/O Munna Sakhiyapani	17/07/2010 6:15 PM	ANC III with ?APH (?placenta previa) with mild PIH with ?IUD with moderate anaemia	Pulse 98/min, BP 130/90 mm Hg, Uterus 28 weeks, cephalic, FHS not localised	-	Inj Revici (Butyl alcohol, citric acid), Inj Cefotaxime, Tab Methylidopa	MYH Indore	This case required a caesarean section - with a blood bank available, this should have been managed in the DH itself and did not need referral.
3	Anita, 20 years W/O Raju Bagh	17/07/2010 6:30 PM	ANC III with ? placenta previa with anaemia with shock	Pulse 110/min, BP 80/60 mm Hg, Uterus 30 weeks, Cephalic, FHS +, PV not done	-	Inj Cefotaxime, Inj Hydrocortisone, NS 500 ml.	MYH Indore	This case required a caesarean section - with a blood bank available, this should have been managed in the DH itself and did not need referral. Also, Anita was in shock - to refer her to a facility 4 hours away in this condition is unacceptable.

4	Suman, 25 years, W/O Kamal, Jamoti	18/07/2010 11 AM	? Obstructed labour with moderate anaemia with Rh neg pregnancy	Pulse 92/min, BP 120/90 mm Hg, Uterus 34 weeks, cephalic, FHS +	Hb 9.4 gms/dl, A neg	-	MYH Indore	This case required a caesarean section. Though Suman had an uncommon blood group, her Hb was 9.4 gms/dl. This could have been managed in the DH itself.
5	Lata, W/O Sanjay, Loharia	18/07/2010 1 PM	Term pregnancy with pain with pre eclampsia	Pulse 90/min, BP 140/110 mm Hg, Pedal edema ++, Uterus 34 weeks, cephalic, FHS +, PV Os closed	Hb 11.6 gms/ dl, B POS, Urine albumin +, USG - 37 weeks foetus.	Inj Mg SO4, Nifedipine 5 gms, I. Methyl/dopa	-	Reason for this referral is not clear. This case could have been managed in the DH itself.
6	Bhatu Bai, 28 years, W/O Manla, Kajalmata	Date? 3:40 PM	Term pregnancy with ?obstructed labour with ? rupture uterus	Pulse 88/min, BP 120/70 mm Hg P/A fetal parts felt as per they are out of the uterus and in the abdominal cavity. FHS not localized. PV Os fully dilated, presenting part head at -1 and caput at 0.	-	-	MYH Indore	In this case a diagnosis of rupture uterus has been made with signs of the foetus having come out of the uterus. This needs immediate surgery and repair/removal of uterus to save the woman's life. Referring her in such a scenario to a facility 4 hours away is unacceptable. There are no details available regarding further course of events in this case.
7	Sena Bai, 25 years W/O Vishram Abarsuma	19/07/2010 11:55 AM	Triplet pregnancy with leaking with PIH with anaemia with ? hand prolapse	Pulse 82/min, BP 130/90 mm Hg	-	-	MYH Indore	The reason for this referral is not clear - the DH has a neonatal intensive care unit. Also there was already hand prolapse and a referral at this stage would be dangerous.

8	Radha Bai, 30 years W/O Mukteah Anjad	21/07/2010 6:15 PM	Term pregnancy with ?APH with placenta previa with Rh neg pregnancy with ? IUD	Pulse 92/min, BP 120/80 mm Hg, Pallor +, Uterus 34 weeks, Cephalic presentation, FHS Not localized	Hb 10.6 gms/ dl, O neg	-	MYH Indore	This case needed a caesarean section that could have been managed in the DH itself.
9	Lalita, 22 years, W/O Sunil, Nisarapur	23/07/2010 12 PM	Term pregnancy with pain with ? pre eclampsia	Pulse 88/min, BP 160/110 mm Hg, Pedal edema ++, Uterus 34 weeks, Cephalic presentation FHS +, PV Os closed.	Hb 10.4 gms/ dl, O Pos, Urine albumin +, Blood urea 48.5 mg/dl, S.creatinine 1.27 mg/dl	Inj Mg SO4 loading with maintenance dose, T Methylidopa 250 mg, Cap Nifedipine 5 mg sublingual	MYH Indore	The reason for referral in this case is not clear. This could have been managed in the DH itself.
10	Ranjoo Bai, 26 years W/O Bhim Tintuka Jirabad	26/07/2010 1 PM	3rd gravida with hand prolapse with severe anaemia	Pulse 98/min, BP 120/80 mm Hg	Hb 7.4 gms/dl, O Pos	3 units blood transfusion, IV fluids, antibiotics	MYH Indore	This case required a caesarean section - with a blood bank available, this should have been managed in the DH itself and did not need referral.
11	Ramboo Bai, 21 years, Longohari, Kukshi	26/07/2010 2:35 PM	APH with severe anaemia	Pulse 140/min, BP 110/70 mm Hg	Hb 7.7 gms/dl, O Pos	3 units blood transfusion, IV fluids, antibiotics, Revicl	MYH Indore	The reason for referral in this case is not clear. This could have been managed in the DH itself.
12	Seema, 25 years, W/O Santosh Ojhar	27/07/2010 12:45 AM	ANC 4th gravida with gross polyhydramnios, with IUGR	Pulse 80/min, BP 110/80 mm Hg, Uterus overdistended, lie couldn't be made out, PV Os 1 finger, uneffaced	Hb 11.6 gms/ dl, B POS	IV fluids	MYH Indore	The reason for referral in this case is not clear. This could have been managed in the DH itself.
13	Raju Bai, 22 years, W/O Parashuram Pendra	24/08/2010 7:30 AM	Threatened abortion with cardiac disease (Rheumatic heart disease - Mitral stenosis)	Amenorrhea 3 months, bleeding PV, Pulse 78/min, BP 110/70 mm Hg	Hb 9 gms/dl, O POS	IV fluid, Inj Ampicillin, Inj Revicl	MYH Indore	This case was probably referred for specialist cardiac care to the higher facility.

14	Jam Bai, 20 years, W/O Nonu, Khuboda, Sindhwa	28/08/2010 7:30 AM	Primipara postnatal 2nd day with severe anaemia with jaundice with high grade fever	Pulse: 130/ min, BP 140/80 mm Hg, febrile, Uterus well contracted, Bleeding PV Normal	Awaited	Inj MgSO4 14 gms - 10 gms IM, 4 gms IV, Inj Cefotaxime Inj Paracetamol, IV mannitol	MYH Indore	The reason for referral in this case is not clear. This could have been managed in the DH itself.
15	Kushiya Bai, 30 years W/O Bhayla Sustikheda	31/08/2010 12:20 PM	ANC with placenta previa with severe anaemia with shock with ? IUD	Pulse 112/min, BP 70/60 mm Hg, cold and clammy, Uterus 34 weeks, Cephalic presentation, FHS not localized by stetho, Bleeding+	Hb 7 gms/dl, AB POS	-	MYH Indore	The reason for referral in this case is not clear. This could have been managed in the DH itself. Also, at the time of referral, the woman was already in shock with active bleeding - referring her to a centre 4 hours away is unacceptable.
16	Shakila, 35 years, Rajpur	02/09/2010 5:15 PM	Grandmultipara with severe pre eclampsia	Pulse 102/min, BP 210/110 mm Hg, Uterus 34 weeks, Cephalic presentation, Os 1 finger dilated, rst not legible	Hb 9 gms/dl, O POS	Cap Nifedipine 10 mg sublingual, Inj Cefotaxime, IV 5% dextrose	MYH Indore	This case needed a caesarean section that could have been managed in the DH itself.
17	Sukhmu Bai, 26 years Chhapri	11/09/2010 11:30 AM	Ectopic pregnancy	Pulse 102/min, BP 120/80 mm Hg, P/A Soft, Tenderness lower abdomen.	Hb 6 gms/dl, B POS, Scan (10/09/10) Ectopic pregnancy 6 weeks gestation in right tube.	IV fluids, antibiotics, one unit blood	MYH Indore	Reason for this referral is not clear. It is also not clear whether the ectopic pregnancy had ruptured. This could have however been managed in the DH with laparotomy and transfusion of adequate blood.
18	Rajni, 29 years Nagalwadi	03/10/2010 9:30 PM	Grandmulti with anaemia	Pulse 82/min, BP 120/80 mm Hg, Uterus 36 weeks, FHS +	Hb 7 gms/dl, AB POS	-	MYH Indore	The reason for this referral is not clear - this could have been managed in the DH itself.

19	Amreen, W/O Shakil, Barwani	05/10/2010 12:45 AM	Postnatal case with ? Inversion uterus	Pulse 98/min, BP 100/70 mm Hg, P/A Soft, Dimpling present, Uterus not palpable, PV Cervix not felt	Hb 10.4 gms/ dl, AB Pos	IV RL 1 pint, Inj Botropase, Inj Cefotaxime	MYH Indore	A case of inversion uterus requires immediate repositioning under anesthesia - that this patient was referred to a facility 4 hours away is totally unacceptable. During the field visits, it was found however that the woman went to a nearby private nursing home where she had immediate surgery and hysterectomy and survived. It was also found from the notes in the private hospital that she had delivered in the DH - inversion of uterus following an institutional delivery raises questions about the quality of care during the third stage of labour.
20	Sayara Bai, 25 years W/O Bala, Rajasthan	11/10/10 Time ?	Term pregnancy with pain with severe anaemia	Pulse 80/min, BP 120/80 mm Hg, Uterus 34 weeks, Cephalic pres, FHS +, PV Os closed, uneffaced	Hb 5 gms/dl, B POS	Inj Tetanus toxoid, Inj Cefotaxime	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself.
21	Anita, 28 years W/O Kalsiya, Rangar	10/10/2010 1:30 PM	ANC with severe anaemia with fever with uneasiness	Pulse 110/min, BP 120/60 mm Hg, Temp 100 degree F, Uterus 28 - 30 weeks, FHS ?, Os closed	Hb 2 gms/dl, O POS	IV fluids, Inj Monocef (ceftriaxone), Falcigo (artesunate), 3 units blood	MYH Indore	This woman has very severe anaemia. However reason for this referral is not clear.

22	Slyadi Bai, 28 years W/O Vikram Singh Palsood	12/10/2010 11:15 AM	ANC 3rd with pain with eclampsia with twin pregnancy with moderate anaemia	Pulse 92/min, BP 170/110 mm Hg, Pedal edema ++, P/A Uterus 36 weeks, Cephalic presentation, Abdominal wall edema +, FHS +, PV Os 1 finger	Hb 10.6 gms/ dl, AB POS	Inj Cefotaxime, Loading and 1st maintenance dose of Inj MgSO4, IV mannitol 100 ml, IV fluids, cap Nifedipin 5 mg sublingual	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself.
23	Samoli, 24 years W/O Bhappu Badgaon	14/10/2010 11:05 AM	ANC 3rd with preeclampsia	Pulse 80/min, BP 160/110 mm Hg, Pedal edema ++, Uterus 34 weeks, ? Oblique lie, FHS not localized, PV Os closed	Hb 10.8 gms/ dl, B POS, Urine albumin Trace	Loading and maintenance dose of Inj MgSO4, Cap Nifedipine 5 mg sublingual, Inj Cefotaxime	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself.
24	Lakshmi, 21 years, Bilva Road	16/10/2010 3 PM	Primi with PROM	Pulse 82min, BP 120/80 mm Hg, FHS +, Cervix 25% effaced, leaking	Hb 9 gms/dl, O POS	-	Private hospital, Barwani (Under Janani Sahayogi Scheme)	Reason for referral in this case is unclear - this could have been managed in the DH itself.
25	Sena, 25 years, W/O Ramesh, Katami	02/11/2010 11:50 PM	28 weeks primi with central plaenta previa with fever	Pulse 80/min, Bp 100/60 mm Hg, Temperature 100 degree F, Uterus 28 weeks size, PV - cervix one finger, clots +, placenta felt, dirty foul smelling discharge.	Hb 9 gms/dl, O POS	Antibiotics, antipyretics	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself. The blood loss could have been quite significant by the time she reached the referral facility 4 hours away.

26	Suneeta, 20 years, W/O Mukesh, Selgewan	08/11/2010 12:50 AM	Severe anaemia with malaria PFR	Pulse 110/min, BP 90/60 mm Hg, Uterus 16 weeks	Hb 4 gms/sl, A POS, Urine albumin ++, PFR +	Inj Cefotaxime, IV fluids, rest not legible	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself.
27	Sushma, 21 years W/O Raju Jamia	10/11/2010 6:10 PM	ANC 7 months with IUD with severe anaemia with low platelet count	Pulse 88/min, BP 110/70 mm Hg, P/A Uterus 28 weeks, P Os closed	Hb 3.4 gms/ dl, B POS, Platelets 77020, Bleeding and clotting time Normal, Widal ++ Malaria negative	Received 3 blood transfusions, Inj Cefotaxime, Inj Metronidazole	MYH Indore	This referral may have been for receiving blood components. Whether this is available in the DH itself is not known.
28	Runda Bai, 20 years, W/O Bhayedesh Indali Shendma	21/11/2010 5:45 PM	Postnatal case with PIH with severe anaemia with distension of abdomen	Pulse 100/min, BP 130/90 mm Hg	Hb 7.7 gms/dl, A POS, Urine albumin ++,	3 units blood, Inj Cefotaxime, Cap Nifedipine	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself.
29	Zoona Bai, 28 years W/O Pushliya Godhaniya	21/11/2010 5:55 PM	Postnatal case with anaemia with dullness	Pulse 98/min, BP 130/80 mm Hg	Hb 8.8 gms/dl, O Pos, Urine albumin +	I fluids, Inj Cefotaxime, Inj Frusemide, IV Mannitol	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself.
30	Durga, 20 years W/O Sanjay Bokrata	26/11/2010 3 PM	ANC 3rd with pain with PIH with ?IUD with deranged renal parameters	Pulse 88/min, BP 130/100 mm Hg, Uterus 34 weeks, FHS not localized	Hb 10.8 gms/ dl, B Pos, Urine albumin Trace, Urine Sugar++, Blood urea 19 mgs/dl, S creatinine 1.9 mg/l	Inj Cefotaxime, Tab Methyldopa	MYH Indore	This may have been for specialist care for the deranged renal parameters.
31	Nirmala, 26 years, W/O Puniya Lonshara	01/12/2010	Previous LSCS with APH with severe anaemia with IUGR	Pulse 110/min, BP 110/60 mm Hg	Hb 7.7 gms/dl, O Pos	IV fluids, 3 units blood, Inj Cefotaxime, Inj Dexamethasone and Inj Hydrocortisone	MYH Indore or Private hospital, Barwani	Reason for referral in this case is unclear - this could have been managed in the DH itself.

32	Ranjana, 20 years, W/O Mahendra Kalyanpura	06/12/2010 12:05 PM	ANC 3rd with pain with Eclampsia with ? Breech	Pulse 80/min, BP 140/90 mm Hg, P/A Uterus 32 weeks, ? Breech, FHS Not localised, PV Os closed	Hb 8 gms/dl, B Pos	Inj MG SO4 loading dose, Inj Cefotaxime, 10% dextrose, Cap Nifedipine, IV mannitol	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself.
33	Madhu, Khandlayi	08/12/2010 1:10 AM	Antenatal case with goitre, as advised by gynaecologist					No details are available in the referral letter.
34	Champa, Manavar	12/12/10 1 PM	Obstructed labour	Pulse 80/min, BP 120/80 mm Hg, FHS +, PV fully dilated, membranes absent, caput +	Hb 10.4 gms/ dl, O Pos	IV fluids, Inj Cefotaxime	Private hospital, Barwani under Janani Sahayogi Yojana	Reason for referral in this case is unclear - this could have been managed in the DH itself. Champa was already fully dilated in obstructed labour. She would need immediate delivery by caesarean section. There is a danger of uterine rupture before she reaches the next facility 4 hours away.
35	Surekha, 20 years W/O Vicky Bakaner	15/12/2010 12:35 PM	ANC 3rd with eclampsia	BP 160/110 mm Hg, Uterus 36 weeks	Hb 8.4 gms/dl, O POS	Received 1 blood transfusion, Inj MgSO4 loading and maintenance dose, Cap Nifedipine	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself.
36	Baya Bai, 20 years, W/O Heyta Merta	17/12/2010 5:40 PM	Postnatal case with eclampsia	BP 140/110 mm Hg	Hb 10.2 gms/ dl, AB POS	Inj Mg SO4 loading and maintenance dose, Inj Cefotaxime, Cap Nifedipine	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself.

37	Geeta, 23 years, W/O Manoj Pansamal	17/12/2010 9:15 PM	ANC 3rd with pains with breech with previous CS with VBAC with rupture uterus with hematemesis with ? IUD	Pulse 90/min, BP 100/70 mm Hg, Uterus 34 weeks, ? Breech, FHS not localized	Hb 11.4 gms/dl, AB Pos, Urine albumin +	Inj Cefotaxime, Inj Bortropase, IV fluids	MYH Indore	This case was referred with a diagnosis of rupture uterus. This needs immediate surgery and repair/removal of uterus to save the woman's life. Referring her in such a scenario to a facility 4 hours away is unacceptable. There are no details available regarding further course of events in this case.
38	Champa Bai, W/O Gudiya Bilva Road	24/12/2010	G5P4 labour not progressing	Pulse 82/min, BP 120/80 mm Hg	Hb 9.6 gms/dl, O POS	Private hospital, Barwani under Janani Sahayogi Yojana	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself.
39	Lalita, 28 years, Pati	03/01/2011 9:20 PM	ANC 3rd with mild PIH with APH with ? abruptio placenta	Pulse 88/min, BP 130/90 mm Hg. P/A Uterus 32 weeks, Cephalic presentation, FHS +, PV Os 3 cm dilated	Hb 8 gms/dl, B POS	Blood one unit, Inj Cefotaxime, Inj Revici	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself.
40	Gaura Bai, 27 years, W/O Haytas Barwani	06/01/2011 7:45 PM	ANC 3rd with eclampsia with malaria PVR +ve with deranged S. Creatinine	Pulse 88/min, BP 140/110 mm Hg, Uterus 32 weeks, Cephalic, PV Os closed	Hb 9.9 gms/dl, O POS, Urine albumin +++, PVR seen, Blood urea 29 mgs/dl, S. creatinine 1.8 mg/dl	Inj Mg SO4 loading and maintenance doses, Inj Cefotaxime, Inj Diazepam, Inj Chloroquine sulphate	MYH Indore	Gaura Bai was probably referred for specialist care for deranged renal parameters.

41	Kiru Bai, 30 years W/O Shaymal Budi	07/01/11 2:55 AM	Postnatal case with PPH with cervical tear with shock with severe anaemia	Pulse 112/min, BP 90 systolic, Uterus well contracted, PV - 4 -5 fistful of blood and clots in vagina and uterine cavity, Left lateral cervical tear extending upto isthmal area	Hb 9.2 gms/ dl, AB neg, Platelets 44000, S Bilirubin 7.3 gms/dl	IV fluids, Inj Cefotaxime, Inj Vit K, Inj Bortapase	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself. Also, Kiru Bai was in shock with active bleeding. To refer her to a centre 4 hours away would be unacceptable. Further course of events in this case is not known.
42	Pemal Bai, 22 years, W/O Magilal, Katura	14/01/2011 11:10 AM	Post LSCS with thrombocytopenia with bleeding tendency	Pulse 90/min, BP 120/80 mm Hg, LSCS done for hand prolapse	Hb 8 gms/dl, O POS	Blood 3 units, antibiotics	MYH Indore	This referral may have been for receiving blood components. Whether this is available in the DH itself is not known.
43	Vijayshree, 30 years, W/O Dinesh, Kari	17/01/2011 6 PM	Prematur labour pain with leaking with anaemia	Pulse 88/min, BP 120/90 mm Hg, Uterus 34 weeks, FHS +, PV Os closed, leaking +	Hb 5 gms/dl, O POS	IV fluids, Inj Cefotaxime, Inj Revici, Blood transfusion 3 units	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself. The DH also has a neonatal intensive care unit.
44	Pushpa, 36 years, W/O Himtalal, 36 years	19/01/2011 10 AM	APH with Severe anaemia	Pulse 100/min, BP 110/80 mm Hg,	Hb 8 gms/dl, O POS	IV fluids, Inj Cefotaxime, Inj Dexamethasone	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself.
45	Vijayshree, 30 years, W/O Dinesh, Kari	19/01/2011 12:30 PM	Oligohydramnios with leaking with anaemia	Pulse 100/min, BP 120/80 mm Hg	Hb 8 gms/dl, O POS	IV fluids, Inj Cefotaxime, Inj Dexamethasone	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself.

46	Not clear, Bhaislay	20/01/11 5 PM	Leaking since morning	Pulse 80/min, BP 120/80 mm Hg, Uterus 34 weeks size, FHS+, PV Leaking +	Hb 9 gms/dl, AB POS	Inj Cefotaxime	Private hospital, Barwani under Janani Sahayogi Yojana	Reason for referral in this case is unclear - this could have been managed in the DH itself.
47	Sunita, 22 years, Konda	21/01/2011 5:40 PM	Previous LSCS with prolongd labour, patient not willing for operation	Pulse 88/min, BP 120/80 mm Hg, Uterus 36 weeks, FHS+, PV findings not clear	Hb 9 gms/dl, B POS	Antibiotics	MYH Indore	Reason for referral in this case is unclear - this could have been managed in the DH itself. How referral to a higher centre convinced the patient regarding need for surgery is unclear.

Annexure 4

Recommendations organised by authority centres and time period

State: Immediate (Within the Next Quarter)

- Give highest priority to addressing the issue of Maternal Health in Barwani and Madhya Pradesh. The Chief Minister should take immediate cognisance of the issue and should ensure implementation of these recommendations.
- Initiate a detailed review of the maternal deaths that have taken place in the district since April 2010, looking at systemic issues and also failures of individuals, or systems in individual cases.
- State level health officers should take immediate action against those who are found to have failed to have discharged their duty, and have proved to be negligent at the district level and in the Barwani DH.
- Take stringent action against those found guilty of corruption to send out a clear message that corruption will not be tolerated at any level.
- The CMHO should give a plan for acting on the recommendations of this report within one month, including-
 - ❖ Operationalisation of the Maternal Health PIP.
 - ❖ Making select facilities fully functional as CEmOC and BEmOC Centres particularly in the underserved areas.
 - ❖ Plan for clinical audits in the District Hospital and CEmOC and BEmOC Centres.
 - ❖ Ensure Maternal Death reviews take place in all districts according to National Guidelines including-
 1. Set up and operationalise systems for reporting of maternal deaths both at the facility and community level.
 2. Ensure that Maternal Death Reviews are carried out at the facility and community levels, and that systemic corrections are made based on their findings.
 3. Ensure that Maternal Death Reviews are institutionalised at the district level in the monthly Inter-Departmental meetings chaired by the District Collector and systemic actions taken.
 4. District level Maternal Death Reviews are collated at state level and analysed to initiate systemic changes based on their learnings.
- Ensure that CHC/ FRU have facilities and infrastructure for c-sections, emergency care, and provision of skilled personnel, equipment and supplies, particularly in underserved areas. Fill up vacancies of doctors and other related staff as soon as possible.

- Ensure provision and monitoring of safe abortion services in CHCs and PHCs.
- Develop systems to make referrals accountable, including provision of ambulances, and continuity of care during referrals by providing 'accompanied transfers'.
- Develop a plan for controlling nutritional anaemia and management of sickle cell anaemia, anaemia compounded with malaria for districts like Barwani, with participation of the affected districts. Also ensure malaria control, detection and treatment activities are planned and undertaken. This will also call for coordinated Inter-Departmental action.
- Undertake efforts to ensure that the District Hospitals in Barwani and other such Districts are equipped and staffed adequately to discharge their functions of dealing with critical case load. This will also include efforts to improve the motivation and morale of the work force.
- Undertake urgent skill building training of all staff engaged in delivering services, and set up monitoring mechanisms to ensure supportive supervision post training,
- Post individuals in weaker districts who are known for their results orientation, efficiency and integrity and give them all the support that they need to turn the situation around in these districts.
- Operationalise a Grievance Redressal Mechanism, including emergency responses, and review it quarterly.
- Undertake quarterly reviews against select indicators like maternal deaths, newborn deaths, referral rates, C-section rates, etc.
- Ensure continuity of care through the antenatal and postnatal periods with follow up care in case of complications.
- Set up monitoring mechanisms involving multiple stakeholders, including academic institutions and civil society, to monitor operationalisation of the above interventions. These should include timelines for action, and what will be done if these are not met.

State: Mid Term (Six Months to One Year)

Develop a realistic plan to strengthen the primary health care in tribal districts of the State including-

- Strengthening and monitoring of required numbers of ASHAs.
- Strengthening ANMs with SBA training, and ensuring that subcentres can handle quality ANC and normal deliveries. Improve the infrastructure of the subcentres to ensure that the ANMs can stay and provide quality ANC, Intranatal Care and Postnatal Care.
- Ensuring that a regular schedule for VHNDs is planned, publically disseminated and implemented. Provide adequate support to health care staff for travel for these. Set up monitoring mechanisms to ensure delivery of a select package of services including appropriate antenatal care, nutritional interventions and immunisation.
- Identifying skilled Dais and building their capacities to handle normal deliveries and identify complications, especially in difficult areas, and ensuring support for them including access to Emergency Obstetric Care when required.

- Monitoring malnutrition closely so as to prevent acute malnutrition, and provide special nutritional support for malnourished children and women.
- Budgetary provision for improving the nutritional status of adolescent girls.

State: Long Term (Within Three Years)

- Ensure quality health human resources for the state of Madhya Pradesh including a comprehensive human resources strategy. This should include adivasi girls and boys.
- Ensure a reduction in malnutrition, anaemia and malaria.
- Ensure support structures for better access to health care including transport and communication facilities.
- Develop effective system for monitoring of health related goals.

District: Immediate

- Operationalise the Maternal Health PIP immediately.
- Deploy available human resources rationally, ensure through creating enabling environment that they can contribute effectively. Develop creative solutions for managing the human resources shortage without compromising the quality of care; examples of good practices from other states will be useful.
- Strengthen monitoring and supportive supervision. Improve accountability measures in the District.
- Do quarterly reviews of select indicators like referral rate, C-Section rates, Grievance Redressal, etc.
- Operationalise Maternal Death Reviews at the facility and community levels.

District: Medium Term

- Develop realistic Anaemia Prevention and Control programme, Sickle Cell Management programme and Malaria Prevention and Control programme, with mass information campaigns that reach the remotest village and hamlet.
- Strengthen Community Monitoring and Community Action, and maternal death reporting and review as part of Community Monitoring.

District: Long Term

- Identify, strengthen, and create institutions for health-related human resource training.
- Implement programmes to motivate local young men and women to join the health work force.

Annexure 4

Abbreviations

1. AFI: Amniotic Fluid Index
2. amp: ampoule
3. ANC: Antenatal care
4. ANM: Auxiliary Nurse Midwife
5. APH: Antepartum Haemorrhage
6. ASHA: Accredited Social Health Activist
7. Aus antigen: Australia antigen
8. BEmONC: Basic Emergency Obstetric and Neonatal Care
9. BP: Blood Pressure
10. CAG: Comptroller and Auditor General
11. CEmONC: Comprehensive Emergency Obstetric and Neonatal Care
12. CMHO: Chief Medical and Health Officer
13. C/O: Complains of
14. C section: Caesarean section
15. DDY: Deendayal Antyoday Upchar Yojana
16. EmOC: Emergency Obstetric Care
17. FGD: Focus Group Discussion
18. FHS: Fetal Heart Sound
19. FRU: First Referral Unit
20. G: Gravida
21. gms: grams
22. gms/dl: grams per decilitre
23. Hb: Haemoglobin
24. H/O: History of

25. hpf: High Power Field
26. HRW: Human Rights Watch
27. ICDS: Integrated Child Development Scheme
28. ICU: Intensive Care Unit
29. IFA: Iron and Folic Acid
30. IMR: Infant Mortality Ratio
31. Inj: Injection
32. IPHS: Indian Public Health Standards
33. IUD: Intrauterine death
34. IUGR: Intrauterine Growth Restriction
35. IV: Intravenous
36. LMP: Last Menstrual Period
37. LSCS: Lower Segment Caesarean Section
38. MBBS: Bachelor of Medicine and Bachelor of Surgery
39. MD: Mission Director
40. MgSO₄: magnesium sulphate
41. mm Hg: millimetres of mercury
42. MMR: Maternal Mortality Ratio
43. MO: Medical Officer
44. MPW: Multi Purpose Worker
45. MTP: Medical Termination of Pregnancy
46. MVA: Manual Vacuum Aspiration
47. NRHM: National Rural Health Mission
48. O/E: On Examination
49. OPD: Outpatient Department
50. P: Para
51. P/A: Per abdomen

52. PIH: Pregnancy Induced Hypertension
53. PIP: Project Implementation Plan
54. PI F R: Plasmodium falciparum
55. PI V R: Plasmodium vivax
56. PNC: Postnatal care
57. PPH: Postpartum haemorrhage
58. PROM: Premature Rupture of Membranes
59. PV: Per vaginum
60. QA: Quality Assurance
61. RKS: Rogi Kalyan Samiti
62. RL: Ringer's lactate
63. RTI: Right to Information
64. S: Serum
65. SBA: Skilled Birth Attendant
66. SOS: As required
67. TBA: Traditional Birth Attendant
68. TOR: Terms of Reference
69. TT: Tetanus Toxoid
70. USG: Ultrasonogram
71. UTI: Urinary Tract Infection
72. VHND: Village Health and Nutrition Day
73. VHSC: Village Health and Sanitation Committee
74. WNL: Within normal limits
75. W/O: Wife of

