



# Operational Guidelines for Establishing Sentinel Stillbirth Surveillance System

June 2016

Child Health Division Ministry of Health and Family Welfare Government of India



**Developed for Ministry of Health & Family Welfare by World Health Organization Country Office for India** 



# OPERATIONAL GUIDELINES FOR ESTABLISHING SENTINEL STILLBIRTH SURVEILLANCE SYSTEM

June 2016

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C.K. Mishra

Additional Secretary & Mission Director, NHM Telefax: 23061066, 23063809 E-mail: asmd-mohfw@nic.in



भारत सरकार

स्वास्थ्य एवं परिवार कल्याण मंत्रालय निर्माण भवन, नई दिल्ली - 110011 GOVERNMENT OF INDIA MINISTRY OF HEALTH & FAMILY WELFARE NIRMAN BHAVAN, NEW DELHI - 110011

### PREFACE

As part of the national and international commitments, India is steadfast in its resolve to reduce Neonatal Mortality Rate (NMR) to single digit by year 2030. Going by the past trends in the reduction of Infant Mortality and Neonatal mortality, India seems to be on the right track. However, we need to capitalize on the ground gained and consolidate what has been achieved. Post 2015, the world will focus on achieving the Sustainable Development Goals (SDGs). India Newborn Action Plan (INAP) clearly spells out that we need to continue working on reducing NMR to much lower levels; we also need to focus on stillbirths which is not only an adverse pregnancy outcome but also affects the health of the mother and the family.

Stillbirth surveillance at the facility level will provide opportunity to not only count but review the circumstances, risk factors and leading determinants resulting in a stillborn baby. By analyzing the surveillance information, the variation in antenatal and intrapartum care and its outcomes will inform the implementation of the evidence based interventions. It should not, however, be seen as an isolated intervention but be an integral part of maternal and newborn care. In addition to implementation of surveillance activities, I encourage teams at the sentinel sites to use surveillance as a tool to address burden of stillbirths by improving health systems and clinical care at the health facilities.

These guidelines are being brought out at a very opportune moment, addressing a need that is being felt not just at the national but at the global level. I am confident that with these guidelines, the States will take up the implementation of this initiative with full vigour and commitment.

(C.K.Mishra)

New Delhi July 4, 2016

वन्दना गुरनानी,भा.प्र.से. संयुक्त सचिव VANDANA GURNANI, IAS JOINT SECRETARY Tel.: 011-23061706

E-mail.: vandana.g@ias.nic.in



भारत सरकार स्वास्थ्य एवं परिवार कल्याण मंत्रालय निर्माण भवन, नई दिल्ली - 110011 Government of India Ministry of Health & Family Welfare

Nirman Bhavan, New Delhi - 110011

### **PREFACE**

India has made substantial gains in tackling direct obstetric complications however the indirect causes that put a substantial proportion of our mothers and children at risk of mortality & morbidity need to be reviewed. Stillbirth surveillance that will provide better information for its causes is important to address the silent burden of stillbirths. Annually, approximately 6 lakhs stillbirths happen in the country resulting mostly from complications during pregnancy and childbirth occurring in India. Most maternal and perinatal deaths are preventable or treatable if life-saving preventive or therapeutic known and effective interventions are provided at the right time.

India's commitment to achieve single digit Stillbirth Rate under India Newborn Action Plan (INAP) by Ministry of Health and Family Welfare is a step forward towards achieving our national and international commitments for its newborns. Establishing sentinel surveillance system in India through institutions will enable assessment of the magnitude of stillbirths and compel policy-makers and decision-makers to give the problem the attention it needs and plan for interventions to prevent stillbirths.

I would like to congratulate the Child Health Division in preparing the Operational Guidelines for establishing Sentinel Stillbirth Surveillance System in collaboration with the World Health Organization and other partners. This guideline is the first step towards reviewing every stillbirth at the facility level and will guide the nation to take steps to significantly reduce maternal and neonatal mortality and morbidity. I am hopeful that the designated centers will take cognizance of these new guidelines and incorporate stillbirth surveillance as an integral component of the quality care at birth.

(Ms. Vandana Gurnani)

New Delhi July 4, 2016



**Dr. Ajay Khera**M.B.B.S, D.G.O., M.D. (Public Health)
Deputy Commissioner
Child Health & Immunisation

Telefax: 91-11-23061281 E-mail:dcmch-mohfw@nic.in, ajaykheramch@gmail.com



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### Acknowledgement

I would like to acknowledge the contribution of all members of the expert group in developing the content of this technical and operational guideline. I would also like to acknowledge my colleagues in Child Health and Maternal Health division especially Dr. P.K Prabhakar, DC (CH), Dr. Baswal DC (MH), Dr. Renu Srivastava, Dr. Nimisha Goel for their valuable efforts and inputs. My sincere thanks to Dr. Anju Puri for her efforts to compile and finalize these operational guidelines. In addition, the contribution of Dr Dhariwal Ex HOD, Department of Obstetrics & Gynecology, PGI Chandigarh for the piloting and guiding the process of standardizing the stillbirth protocol to conduct facility based sentinel stillbirth surveillance is acknowledged.

(Dr. Ajay Khera)

# **List of contributors**

### Ministry of Health and Family welfare

Dr. Ajay Khera
 Dr. P.K. Prabhakar
 Dr. Dinesh Baswal
 Dr. Weena Dhawan
 Dr. Renu Srivastava
 Dr. Nimisha Goel
 Mr Vishal Kataria
 DC (Child Health)
 DC(Maternal Health)
 AC(Maternal Health)
 Consultant, MOHFW
 Consultant, MOHFW

### **Members of Stillbirth Technical Advisory Committee**

 Dr. Lakhbir Dhaliwal Ex HOD D/o O&G, PGIMER, Chandigarh Dr. Suneeta Mittal D/O O & G, Fortis Hospital, Gurgaon Dr. Pratima Mittal D/o O & G VMMC, New Delhi Dr KC Aggarwal Prof & Pediatrics Dept Safdarjung Hospital Dr Harish Chellani Prof Pediatrics Deptt Safdarjung Hospital Dr. Rajesh Mehta Medical Officer, CAH, WHO-SEARO Dr. Paul Francis Medical Officer(MCH), WHO-India Dr. Anju Puri NPO (Child Health), WHO-India Dr. Gagan Gupta Health Specialist, UNICEF-India Dr. Sachin Gupta PMS (Child Health), USAID -India Dr Harish Kumar Director NIPI UNDP Newborn Project Dr. Poonam Shivkumar D/O O & G MGIMS, Wardha Dr Subodh Gupta Prof. Community Medicine MGIMS, Wardha Dr. Manish Jain MGIMS, Wardha Dr. Arun Aggarwal Professor, PGIMER, Chandigarh Mr. Ankit Mishra AD, Statistics Division Dr. Rajesh Khanna Project Officer, Saving Newborn Lives Dr. Javvad Suri **IPE** Global

# **Acronyms**

CHL Crown-heel length

CODAC Causes of death and associated conditions

HMIS Health Management Information System

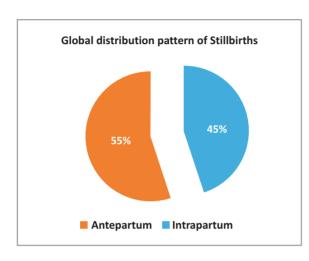
ICD International Classification of Disease

SRS Sample Registration System

WHO World Health Organization

### I. Introduction

Stillbirth or intrauterine fetal death is an unfavorable pregnancy outcome and is defined as complete expulsion or extraction of baby from its mother where the fetus does not breathe or show any evidence of life, such as beating of the heart or a cry or movement of the limbs. WHO defines stillbirth for international comparison as a baby is born with no signs of life at or after 28 weeks' gestation. The birth weight is often used in defining stillbirth if the gestational age is unknown.



Globally, an estimated 2.6 million stillbirths occur each year which account to nearly 7,200 babies stillborn each day. Ten countries alone including India account for two-thirds of all global stillbirths >28 weeks. Amongst the total 1.19 million (45%) are intra-partum and 1.46 million (56%) are antepartum. Current global stillbirth rate is 18.9/1000 total births and the average annual rate of global decline in stillbirths between 1995 and 2009 has been 1.1%,

much slower when compared to the decline in maternal and child mortality.

In India, estimated 6 lakh stillbirths occur every year. As per the estimations made by Lancet (2011) the current stillbirth rate is 22 per 1000 total births, there are wide interstate variations. As per the national HMIS 3,03,857 stillbirths were reported for the year 2015-16.

Largely, the causes of many stillbirths are unknown as discerning the actual cause of stillbirths is a challenge. There are number of risk factors that are directly and/or indirectly associated with stillbirth. The known causes of stillbirth fall into following three broad categories;

- 1. Fetal and neonatal causes (birth defects or genetic problems, Small for gestational age)
- 2. Placenta or umbilical cord related issues (abruption placenta)
- 3. Maternal causes (uncontrolled diabetes, high blood pressure, or obesity, syphilis etc.)

Other contributing factors that may increase the risk for a stillbirth include adolescent pregnancy, maternal age-35 years of age or older, multiple pregnancies, H/O of previous pregnancy loss/stillbirth, smoking during pregnancy. These factors are also associated with other adverse obstetric outcomes, such as preterm birth.

The stillbirth rate is a key indicator of quality of care during pregnancy and childbirth, which is defined by WHO as: 'the extent to which health care services provided to individuals and patient populations improve desired health outcomes. In order to achieve this, health care needs to be safe, effective, timely, efficient, equitable, and people-centred<sup>1</sup>'.

India's Newborn Action Plan has articulated MOHFW vision and goal of "Ending preventable stillbirths to achieve "Single Digit SBR" by 2030, with all the states to individually achieve this target by 2030 with 4.4% average annual reduction rate (ARR) of Still Birth Rate. Preventing stillbirths along with neonatal deaths are integral strategy within the India Newborn Action Plan (INAP) with their specific targets and interventions.

At present there is an unmet need in the country to establish standard stillbirth assessment, recording and reporting as a vital event and understand the determinants over time and health system response capacity. Measuring and counting stillbirths is vital to advance the agenda of both maternal and newborn survival which is crucial to achieve targets under INAP.

Therefore establishing a robust surveillance system for identification and recording of all stillbirths using a uniform classification system is an important step towards improved data and evidence based planning. Sentinel surveillance will also document events which are not being captured by the regular HIMS reporting system and will be able to identify causes and the associated risk factors contributing to stillbirths.

The purpose of the guideline is to assist the program managers and health functionaries of sentinel hospitals/ health facilities to support establishment of surveillance and guide planning and implementation of interventions to reduce still births.

# II. Case definitions adopted for Sentinel Surveillance Purposes

Surveillance is an ongoing and systematic collection, analysis, interpretation, and dissemination of data, it is important to use standard case definitions. Definitions of the stillbirths vary from country to country as survival of a viable fetus is directly dependent upon the functionality of the existing neonatal health care system within a country.

### a) Definitions commonly used for recording stillbirths are as follows;

• **ICD-10** defines a fetal death as death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such

<sup>1</sup> Tuncalp, Were, WM, MacLennan, C et al. Quality of care for pregnant women and newborns-the WHO vision. BJOG. 2015; 122: 1045–1049

separation the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles without specification of the duration of pregnancy. The denominator is all live births plus late fetal deaths.

- For inter country comparisons, **World Health Organization** defines that stillbirth is a baby born with absolutely no signs of life at or after 28 weeks gestation, weight  $\geq 1000$  g, crown-heel length (CHL)  $\geq 35$  cm.
- Under India's HMIS a stillbirth has been defined as "complete expulsion or extraction of baby from its mother where the fetus does not breathe or show any evidence of life, such as beating of the heart or a cry or movement of the limbs"
- b) For the purpose of sentinel surveillance in the country the following definitions will be used
- **Early fetal deaths:** An early fetal death is death of a fetus weighing at least 500 grams (or, if birth weight is unavailable, after 20 completed weeks gestation, or with a crown-heel length of 25 centimeters or more).
- **Late fetal deaths** (stillbirths): A late fetal death is defined as a fetal death weighing at least 1000 grams (or a gestational age of 28 completed weeks or a crown-heel length of 35 centimeters or more).
- **Fresh stillbirth** or Intra partum stillbirths are defined as stillbirths occurring after the onset of labour in less than 12 hours before delivery with no skin changes weighing more than 1,000 grams and more than 28 weeks of gestation, but excludes severe lethal congenital abnormalities.
- Macerated stillbirth or Antepartum stillbirth is a baby born with all
  the changes which occur in a fetus retained in utero after death and the
  death ocurred before the initiation of labour. A "macerated" fetus shows
  skin and soft-tissue changes (skin discoloration or darkening, redness,
  peeling, and breakdown).

India also considers less than 28 weeks gestation fetus as not viable; however the reporting for stillbirths will be done for 20 weeks onwards.

# III. Steps for establishing sentinel surveillance system

This section provides standard guidance to operationalize sentinel stillbirth surveillance at the medical colleges / large district hospitals/ institutions.

### a) Identification of sentinel institution and it's team

In consultation with state, medical college will be identified as the institution to carry out stillbirth surveillance activities. As far as possible, these medical colleges will be the ones identified already as state resource centers for Birth Defect Surveillance system and the sites will be strengthened to enhance surveillance data on stillbirths.

This approach will utilize the existing infrastructure already in place for birth defects surveillance program to incorporate surveillance data on stillbirths. Intensifying surveillance on stillbirths likely will increase the identification and ascertainment of birth defects and vice versa

List of the first 50 medical colleges to be covered in the initial phase is annexed (refer annexure 1). The other medical colleges/district hospitals will be covered in a phased manner to allow any mid-course corrections if any depending on the lessons learned from the implementation activities in the first phase.

As a first step faculty or the Head of department of Obstetrics & Gynecology Department would be designated as the nodal officer and will be responsible for all surveillance related activities. Service providers at the facility who will be involved will be identified and include all obstetricians and gynecologists, pediatricians, resident doctors, medical officers, nurses, other staff including pathologist of the institution.

The designated health staff will be trained on the standard operating procedure on stillbirth surveillance related activities.

# b) Data collection using history and examination

For the purpose of surveillance a standard and consistent format for data collection and collation needs to be used. After a stillbirth is diagnosed, data collection will be done for every stillborn using a standard history taking and examination of both mother and the baby. The details for the following are recorded in a standard format.

- Basic Information
- Maternal History including obstetric history, past medical illness and personal history
- · History of present pregnancy
- Antepartum complications
- Examination of the mother (physical, abdominal, vaginal)
- Investigation of the mother done for the present pregnancy including any fetal screening if any
- · Details of labor for the present delivery
- Delivery details
- · Baby details

- Investigations of the baby
- Placenta examination
- Autopsy of the baby is done where the obstetrician feels the need. Specific indications for autopsy are referred to in the format(field 51)
- Family history

The team at the sentinel site will be trained in filling a standard recording format (Annexure 2) with uniform protocols to enter the requisite fields.

## c) Assigning cause of stillbirth and associated risk factor

After the nodal officer receives the complete documentation of the mother and baby, the cause of stillbirth is assigned by him/her. Sometimes in – case of uncertainty, team would be required to review the details and discuss with the family to identify the cause of stillbirth.

The cause of stillbirth is categorized under the following;

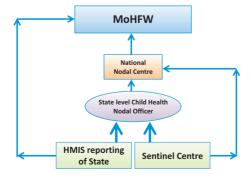
- Infections during pregnancy
- Intra-partum complication
- Fetal cause
- Cord complications
- Placental causes
- Maternal
- Unknown

The associated risk include

- Fetal
- Maternal
- Any other

This simplified surveillance tool utilizes the modified CODAC classification to assess the cause of stillbirth. Medical cause of stillbirths is to be ascertained using modified CODAC classification. This classification enables categorization of important information to explain stillbirth for the purposes of counselling and prevention through audit, epidemiology and research.

# d) Reporting and feedback



For the purpose of reporting, computer and broadband connection will be required for online submission of the forms to SEAR-NBBD database. Monthly all the stillbirths detected will be reported by the facility through a registered id to SEAR-NBDD database.

Each sentinel site will have its own login id

and password for online reporting. All enrolled sites will be responsible for online uploading of the information, conducting analysis and using information for action. Regular reporting from the unit will be a mandatory activity. Even if no stillbirths have occurred during the month "Nil reporting" is indicated. Each site will be reporting to the National Nodal Centre for Stillbirth Surveillance and State Child Health Nodal Officer monthly. All 'Detailed Investigations' using the standard formats should be filled at the institution and retained.

A detailed quarterly report detailing the cause and associated risks will be shared by the medical college with the State Child Health Nodal Officer and onward with national State Child Health Nodal Officer.

In addition, the reporting should be ensured in regular reporting systems as well e.g. HMIS.

### e) Quality validation

National nodal institution along with the sentinel institution will oversee the accuracy of reporting, timeliness and validated information on the causes of stillbirths. Refer role of National Medical College/ nodal center.

### IV. Role and responsibilities

### Team at the institution

- ✓ Nodal officer S/he will report, review and supervise all surveillance activities and allocate the causes of stillbirth.
- ✓ Designated Neonatologist/Pediatrician will examine and confirm the diagnosis of stillbirth.
- ✓ Pathologist will carry out the autopsy of indicated cases, thereby helping arrival at a final diagnosis.
- ✓ Obstetricians & gynecologists/Resident doctors/ nurses/ To fill up the standard recording format with uniform protocols to enter the requisite fields in case of stillbirth. Refer Annexure 3 for standard protocol for filling up the stillbirth form
- ✓ A Data Manager will maintain the records of all stillbirths & its information in a separate register at the medical college/hospital.
- ✓ Data should be managed electronically in order to facilitate a faster transmission of the same.

### State child health nodal officer

The surveillance activities in a state will be under overall guidance of the State Child Health Nodal Officer. They will ensure

- ✓ S/he will facilitate the process of surveillance establishment at the sentinel centers but will also coordinate that the team is trained and the completed reports are submitted timely. The action taken report at the sentinel center following the surveillance will also be shared with her/him.
- ✓ S/he will also identify the new sentinel sites in the states for expanding surveillance network. S/he will be the link between the sentinel center and National nodal center and MoHFW.
- ✓ The state nodal program officer person will also ensure that all the facilities are regularly reporting stillbirths in the facilities under HMIS monthly format Section 4.1.2.
- ✓ The action taken report by the sentinel site to be shared with the state nodal officer

### National Nodal Center

A National Nodal Center will provide clear leadership and technical guidance for ensuring uniform, high quality implementation of sentinel surveillance. This designated National Nodal Center will be responsible for coordinating the activities of the sentinel center

The national nodal center will be responsible to

- ✓ Conduct training for the staff at the sentinel health facilities/ medical colleges
- ✓ Review and analyze the reports
- ✓ Mentor and support the existing and new centers enrolled in the surveillance system. Hand –hold for continuous quality improvement and verification will of the sentinel centers at regular intervals
- ✓ Monitor the progress and quality of stillbirth surveillance and provide recommendations to the MOHFW to improve the implementation and make course corrections
- ✓ Provide recommendations on mechanism to scale the surveillance system across the country

Regular review of the progress will be undertaken by the GoI's Technical Advisory Committee on Stillbirths to take informed decisions, plan and make modifications if required.

### V. Approaching a family for the autopsy of a stillbirth

The reference of autopsy is often awkward and may be painful to the family. Stillbirths being rare and autopsy even rarer, there are high chances of refusal to provide a consent for the procedure. It is the right of the family to accept or reject the request for autopsy. Immediately following the stillbirth, families are often in a very intense grieving period. The investigator discussing autopsy should ideally should established rapport with the parents. The investigator should have detailed knowledge and experience of the autopsy procedure.

It is important to take written consent for conducting an autopsy. It may useful to discuss with the parents: the value of an autopsy, issues related to retained fetal tissues, the possibility that a cause may not be found, cost (if any) to the parents of the autopsy, appearance of the baby following autopsy, the likely timeframe for results to become available and arrangements for communicating results (e.g. appointment following results availability)

# **Annexures**

# Annexure 1: List of sentinel surveillance sites

S. No.	State's name		Name Of the Medical College
1	Andhra Pradesh	I. II. III. IV.	Government Medical College, Anantapur Guntur Govt Medical College Gsl Medical College, Rajahumndry Sri Padmavathi Medical College For Women , Alipiri Road, Tirupati
2	Bihar	I. II. III.	Indira Gandhi Institute Of Medical Sciences, Patna Nalanda Medical College Hospital , Patna Jawarlal Nehru Medical College, Bhagalpur
3.	Chhattisgarh	1. 2.	Government Medical College, Jagdalpur Government Medical College, Rajnandgaon
4	Goa	I.	Goa Medical College, Bambolim, Panaji
5	Gujarat	I.	Government Medical College, Bhavnagar Government Medical College, Surat
6	Jammu & Kashmir	I. II.	Government Medical College, Jammu Government Medical College, Srinagar
7	Jharkhand	I. II. III.	Mahatma Gandhi Memorial Medical College, Jamshedpur Patliputra Medical College And Hospital , Dhanbad Rajendra Institute Of Medical Sciences, Ranchi
8	Karnataka	I. II. III. IV.	Banglore Medical College And Research Institute, Banglore Jawaharlal Nehru Medical College , Belgaum Karnataka Institute Of Medical Sciences , Hubli Kasturba Medical College, Mangalore
9	Kerala	I. II. III. IV.	Government Medical College, Kozhikode Government Medical College, Malappuram Government Medical College, Thrissur Government Medical College, Palakkad
10	Maharashtra	I. II. III. IV.	Armed Forces Medical College, Pune Grand Medical College And Sir Jj Group Of Hospitals, Bombay Mahatama Gandhi Institute Of Medical Sciences Government Medical College, Aurangabad
11	Madhya Pradesh	I. II. III.	Gandhi Medical College, Bhopal Mahatama Gandhi Memorial Medical College, Indore Netaji Subhash Chandra Bose Medical College, Indore
12	<b>O</b> disha	I. II.	Mkcg Medical College And Hospital, Brahmapur, Odisha Shri Ramchandra Bhanj Medical College, Cuttack
13	Puducherry	I. II.	Jawaharlal Institute Of Postgraduate Medical Education & Resarch Institute Mahatama Gandhi Medical College & Research Intitute
14	Rajasthan	I. II. III.	Dr. S.N. Medical College, Jodhpur Government Medical College, Kota Rabindranath Medical College, Udaipur

15	Tamil Nadu	I.	Madras Medical College And Research College And Reserch
			Insitute, Park Town, Chennai
		II.	Government Kilpauk Medical College, Chetput (Chennai)
		III.	Government Vellore Medical College, Adukamparai, Vellore
16	Telangana	I.	Gandhi Medical College
		II.	Government Medical College, Mahaboobnagar
17	Uttar Pradesh	I.	Jawaharlal Nehru Medical College, Aligarh Muslim University,
			Aligarh
		II.	Government Medical College, Orai Jalaun
		III.	Government Medical College, Kannauj
18	Uttarakhand	I.	Government Medical College, Srinagar, Pauri Garhwal,
			Srinagar
19	West Bengal	I.	Calcutta National Medical College, Kolkata
	_	II.	Murshidabad Medical College, Berhampore, Murshidabad

# Annexure 2: Stillbirth Review Proforma

1 Name 2 Age	ther					
Mother Fa    Name						
Mother Fa    Name						
1 Name 2 Age						
Age	high/graduate/PG/Prof					
B. Maternal History  Cardiova Children Previous Children Pre	high/graduate/PG/Prof					
4 Occupation Unemployed/Semiskilled/Skilled/Professional Unemployed/Semiskil  5 Income per capita(Rs.) Total monthly family income	high/graduate/PG/Prof					
5 Income per capita(Rs.) Total monthly family income No of family 6 Residential Address Contact no. 7 Type of area Urban /Rural / Slum  B. Maternal History  8 Obstetrical history Gravida Para Abortion living children Previous Birth defects Y/N if Yes, Details Previous cesarean Y/N if Yes, Details Yes/No- (if Yes, Specify (v) the appropriate & if No ,move to no.10) Anemia Infections Cardiovascular Endocrinal Pulmonary Hematological Auto-immune None If any of the above is yes, details						
Residential Address Type of area    B. Maternal History   B. Maternal History   B. Maternal History   Contact no.	<u> </u>					
Type of area  Urban /Rural / Slum  B. Maternal History  Previous Children Previous C	members					
B. Maternal History  8 Obstetrical history Gravida Para Abortion living children Previous Birth defects Y/N if Yes, Details Previous cesarean Y/N if Yes, Details  9 Past Medical illness Yes/No- (if Yes, Specify (v) the appropriate & if No ,move to no.10) Anemia Infections Cardiovascular Endocrinal Pulmonary Hematological Auto-immune None If any of the above is yes, details						
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Anemia Infections Cardiovascular Endocrinal Pulmonary Hematological Auto-immune None If any of the above is yes, details						
Pulmonary Hematological Auto-immune None If any of the above is yes, details	Yes/No- (if Yes, Specify (v) the appropriate & if No ,move to no.10)					
If any of the above is yes, details						
10 Personal History Tobacco / Smoking /Alcohol / Consanguinity /Rubella Vaccination(V) It	If any of the above is yes, details					
	f yes, details					
11 Family History Diabetes /Hypertension/ Birth Defects / None/ Others (v) if yes,specify	Diabetes /Hypertension/ Birth Defects / None/ Others (v) if yes,specify,					
C History of present pregnancy (v) the appropriate LMP						
12   Iron/Folic acid intake(periconception)   Yes /No						
13 Antenatal visits(minimum 4) Yes / No						
14 Place of ANC SC/ PHC/ DH/ Private Nursing Home/ Medical Colle						
15 Last visit before diagnosis of IUFD Days ago	ge					
16 History of drug intake   Yes / No Details	ege					
17 History suggestive of rubella (Fever+Rash) Yes / No	≥ge 					

	D. Antepartum complications							
18	Disease	Yes/No	Type(√) the appropriate	Diagnosed at(wks)	Treatment (specify)	Dose		
18.1	Anemia		Mild /Moderate / Severe/ very severe	i i				
18.2	Infection		Syphilis/ HIV /hyperpyrexia, if others, Specify					
18.3	Hypertension		Chronic/Gestational/ PE/ Eclampsia					
18.4	Diabetes		Type I/Type II/GDM		Diet / Insulin/ Oral			
18.5	.5 IUGR Mild/Severe							
18.6	APH		Placenta Previa/ Abruptio					
18.7	Preterm labor							
18.8 PROM PT/ Term/ Chorioamnionitis								
18.9	Cholestasis							
18.10	Multiplepreg.		Twins/Triplets/Higher					
18.11	Trauma		RTA/Fall/domestic violence					
18.12	IUFD		Second/Third trimester					
18.13	Others							

	E.Examination of the mother at admission					
19	Physical examination	n	20	Abdominal e	xamination	
19.1	Weight / Height(Kg/cm)		20.1	Fundal height	Corresponding/less/more than POG	
19.2	Pulse rate(beats/minute)		20.2	Fetus	Singleton / Multiple	
19.3	Blood pressure Systolic/Diastolic(mmHg)		20.3	Presentation/ Lie	Cephalic/Breech/Transverse	
19.4	Respiratory Rate		20.4	FHS	Present/ Absent	
19.5	Temp(Degree Celsius)		20.5	Ut/ scar tenderness	Yes / No	
19.6	Pallor	Yes/No	21	Vaginal examir	nation	
19.7	Oedema	Yes / No	21.1	Bleeding PV	Yes / No	
19.8	Cardiovascular system	N /Abn	21.2	Liquor	Clear/Meconium/ Foul smelling	
19.9	Respiratory system	N/ Abn	21.3	Cord Prolapse	Yes /No	

		F. Investigations of	the m	other		
22	Investigations		23. scre	Prenatal eening	TICK (√)	If Abnormal, specify findings.
22.1	Hb (gm/dl)		ře	Dual marker	N/Abn/ND	
22.2	Urine albumin / sugar Microscopy	N / Abn	1st trimester	Ultrasound for Nuchal translucency & nasal bone	N/Abn/ND	
22.3	Blood group & ,Rh typing if negative ICT	+ve / -ve	trimester	Triple test	N/Abn/ND	
22.4	VDRL/TPHA	+ve / -ve	2 <sup>nd</sup> tri	Anomaly scan (level 2 ultrasound)	N/Abn/ND	
22.5	HIV	+ve / -ve		Latest Growth scan	N/Abn/ND	
22.6	GTT/ GCT	N / Abn		Days ago		
22.7	Others, specify		3rd			

		G. Details of labor (V) the appropriate			
24	Period of Gestation (weeks)	Calculated by - LMP/LMP+UPT/LMP+USG/Unknown			
25	Type of labor	Spontaneous / Induced if spontaneous, move to 28			
26	Indication for Induction of Labor	HT /Diabetes/IUGR/Cholestasis/PROM/ ,If others specify			
27	Method of induction of labor	Oxytocin / Prostaglandins / Foley's catheter / ARM			
28	Partograph used	Yes / No if Yes, Normal / Abnormal			
29	Fetal Monitoring intrapartum	Manual /CTG / Both			
30	Last CTG/ Manual record prior to I	UFD Hours/prior			
* Du	ration of rupture membranes	/ hrs			
	H. Delive	ery Details (v) the appropriate Date & time			
31	Intrapartum Complications	Non progress of labor Prolonged second stage Fetal distress Obstructed labor Cord complications Fever Rupture uterus Chorioamnionitis Others Abruptio Eclampsia			
32	Mode of delivery	Vaginal / instrumental / Abdominal			
32.1 32.2	· ·				
32.3					
32.3.		Previous cesarean Breech Dystocia APH Fetal distress if others ,specify			
32.3.	Decision to delivery interval	Min.			
33	Duration of 1st , 2nd & 3rd stage	Hrs Min Min			
34	Duration of rupture membranes	Hrs			
35	Who Conducted the delivery	Doctor / Nurse			
36	Maternal outcome	Alive and well Alive but with serious morbidity Death			
	181 1.3 1.1/5	1			
37	I. Baby details Live birth/ Free Birth weight(gms) OFC(cn	sh stillbirth/ Macerated stillbirth (Refer to ANNEXURE-1)  n) Length(cm) APGAR Score 1min 5min 5min 1			
38	Sex (Male-M/Female-F/Ambiguous-				
39	Birth defect Yes/No	Description of Birth defect   Isolated   Multiple   Syndromic			
40	If Birth Defect is yes in above option,				
41 A	Organ Size(cms) Consistence Liver soft/	y , tick (V) Any other mass yes/no , if Yes, describe firm/hard			
В	·	firm/hard			
		J. Investigations of baby			
42		Blood group Hb (gm %) Bilirubin (mg %) (specify value)			
	I I	DCT VDRL TPHA Rubella Toxoplasma CMV Parvovirus Karyotyping (indicate +ve/-ve) others(specify)			
43	Infantogram (whole body x-ray) abnormal:	Yes / No /Not done if 'yes', describe:			

			K.	Placei	nta examination			
44	Weight(gm)			48.	Chorionicity of Multiple Pregnancy	DADC/ DAMC/MAMC		
45	Morphology	N / Abn.		49	Membrane culture	Neg./Post//ND		
46	Cord Insertion	N / Abn.		50	Histopath. Done /not done	Suggestive of syphilis Yes/No		
47	Infarct	Yes / No			Report			
				Autor	osy Done Not done	_		
				Autop	·			
51	External exam. (v) the appropr		ntional /m	inimal	Details Ily invasive			
Ш								
			M. I	amily	ı interview			
52. 3	Sociocultural fact	tors and care						
_								
53		N. Cause o	f Fetal De	ath (N	/lodified from CODAC SIMPLIFIED) (v)	the appropriate		
53.1	Infections		-		ria / Hepatitis /others Specify			
53.2	Intra-partum Mal-presentation /prolonged labor/ Obstructed labor /Fetal distress					or /Fetal distress		
53.3	Fetal		Birth Def Syndrom		Isoimmunization / Hydrops / Extreme	prematurity / Congenital Rubella		
			Syndron	ie / U	nknown			
53.4	Cord compli	ications	Knots / l	oops /	'Abnormal insertion / Cord Prolapse			
53.5	Placental		Abruptio	/ Infa	arction / Thrombi / Previa / Insufficien	су		
53.6	Maternal		Hyperte	nsive o	disorder /Diabetes /Infections / Other	S		
53.7			Unexplai	ned /	Multiples / unclassifiable			
53.8	Associated Fetal	conditions	ILIGR / M	1ultinl	e pregnancy			
53.9					erty /Smoking / Trauma /Alcohol			
33.3	Waternar		Ancilla	1000	Try/Smoking/ Trauma /Alcohol			
56			O. E	xpert'	's opinion- SB Preventable Yes,	/ No		
56.1	Level of care					Optimal / suboptimal		
56.2	Patient repo	rted late to h	ealth facili	ty		Yes / No		
56.3	Referred to appropriate centre Yes / No							
56.4								
56.5	Whether fetal heart present at the time of admission to referral Centre  Yes / No							
56.6	56.6 Cause of IUD at referral centre if FHS present at the time admission							
57	57. Any other information							
	Sr. Any other illiotiliation							
•								
-								
58 1	Person filling the	proforma (de	esignation	1				
55.1	c.son ming the	p. oronnia (de						

# Annexure 3: Standard operating protocol for stillbirth surveillance

S. No	Field	Explanation
	Case Identification	
	Centre ID	Unique ID of the sentinel site
	S. No	Serial number of the Stillbirth
	Hospital record no.	
	Date of admission	
	MCTS No.	
A	<b>Basic Information</b>	
1	Name of mother and father	Indicate stillborn's mother's name and father's name
2	Age of mother and father	Two digit fields.; age in completed years
3	Education of mother and father	Illiterate/ Primary/ Middle/ High school/Graduate/ Post graduate/ Professional
4	Occupation of mother and father	Choose one -Unemployed/semiskilled/ skilled/ professional
5	Income per capita	Sum total of monthly income of all members (in rupees)/ No of family members
6	Residential address	Current residential address with contact details If rural ( note name and details of the ASHA worker)
7	Type of area	Urban / Rural / Slum
В	Maternal History	
8.	Obstetrical history	History of the present pregnancy
8.1	Gravida	Total number of times a woman has been pregnant irrespective of period of gestation (POG)
8.2	Para	The number of viable births.
8.3	Abortion	The number of pregnancies that were lost for any reason, before 20 weeks of gestation including induced abortions, miscarriages or ectopic pregnancy.
8.4	Living children	No. of living children at present
8.5	Previous Still birth (Yes/No)	Yes, if history of birth of a baby born with no signs of life at birth.
8.6	Previous Birth Defect (Yes/No)	Yes, Birth defect is an abnormality of body structure or function that are present at birth and are of prenatal origin
8.7	Previous Cesarean (Yes/No)	Yes, if history of previous Cesarean if present.
9	Past medical illness	Include already diagnosed conditions

9.1	Anemia:	Mild (9-10.9 gm %), Moderate (7 – 8.9 gm %), Severe (4-6.9gm %), Very severe ( < 4 gm %)
9.2	Infections:	Either documented history or investigations – positive VDRL, HIV,TPHA Malaria parasite etc. If VDRL/HIV positive specify.  Status of the partner.
9.3	Cardiovascular disease:	Hypertension, Heart disease Rheumatic or congenital Heart Disease (RHD/CHD), If others, specify
9.4	Endocrinal:	Diabetes (Type I / II), Thyroid diseases, if others specify
9.5	Neurological:	Epilepsy, Tumors, Aneurysms, if others specify
9.6	Pulmonary:	Tuberculosis, Asthma, Chronic Airway, obstructive disease, if Others Specify.
9.7	Hematological:	ITP, Lymphoma, Leukemia, APLA, Thrombophilia, if others Specify
9.8	Auto-immune:	SLE, Rheumatoid arthritis, if others specify
9.9	Any other	Specify
10	Personal History	Yes/ No, if yes details
10.1	Substance abuse	Tobacco / Smoking / Alcohol
10.2	Consanguinity	If the couple share at least one common ancestor
10.3	Rubella vaccination	History of rubella vaccination
11	Family History	Yes / No If yes specify otherwise mark none
11.1	Diabetes	Yes / No If yes specify otherwise mark none
11.2	Hypertension	Yes / No If yes specify otherwise mark none
11.3	Birth defects	Yes / No If yes specify otherwise mark none
11.4	Others	

С	History of present pregnancy	L.M.P
12	Iron / Folic acid intake (periconception)	History of intake of iron ,specifically folic acid 4-6 weeks prior to pregnancy
13	Antenatal visits (Minimum 4)	Antenatal visits minimum 4 or more qualifies the pregnancy as supervised pregnancy.
14	Place of ANC (Choose any one)	SC / PHC / DH / Private Nursing Home / Medical College
15	Last visit before diagnosis of IUFD	Note the details
16	History of drug intake	Write details of drugs (category,dose,duration,specific ally mention, if taken, in the first trimester
17	History suggestive of rubella	History suggestive of rubella (fever +rash)
D	Antepartum complications	
18	Disease	Mention Y/N; if Y details as appropriate including diagnosed at weeks, specific treatment taken with dose details
18.1	Anemia [Classify according to the Hb level]	Mild (9-10.9 gm %), Moderate (7 – 8.9 gm %), Severe (< 7 gm %), Very severe (< 4 gm %)
18.2	Infection [Either documented history or investigations – positive]	VDRL, HIV, Malaria parasite etc
18.3	Hypertension [Systolic blood pressure ≥ 140mm/Hg, Diastolic ≥ 90 mm/Hg on two separate occasions 6 hours apart]	<ul> <li>Chronic HT - Presence of HTN prior to 20 weeks pregnancy or before pregnancy</li> <li>Gestational - HTN diagnosed ≥ 20 weeks pregnancy in the absence of proteinuria.</li> <li>Preeclampsia- HTN diagnosed ≥ 20 weeks pregnancy with presence of proteinuria</li> </ul>
		Eclampsia – Preeclampsia plus convulsions
18.4	Diabetes	Type I-insulin dependent,  Type-II noninsulin dependent
		Gestational diabetes – Diagnosis of diabetes during pregnancy  • GCT Blood sugar - > 140 mg% (screening test using 50 gm glucose)  • OGTT (100 gm) > 105/190/165/145 mg %) – Two or more abnormal (75 gm) – 92/180/153 – Any one abnormal
18.5	IUGR [Diagnosis of Intrauterine growth retardation made clinically by fundal Height less than period of Gestation and/or ultrasound parameters lesser than period of gestation]	Mild if the disparity is up to 4 weeks.  Severe if more than 4 weeks when fetal weight is < 10 centile of the average weight of gestation.

18.6	APH [Bleeding from vagina after 20 weeks of pregnancy till delivery of the baby]	Placenta Previa – Bleeding from a low lying placenta  Placenta Abruptio – Bleeding due to separation of normally situated placenta before birth of baby.
18.7	Preterm labor	Delivery before 37 completed weeks of pregnancy
18.8	PROM	PPROM- Rupture of membranes <i>before 37</i> completed weeks of gestation, before onset of labor.  PROM- Rupture of membranes after 37 weeks of gestation but before onset of labor
		Chorioamniotis- Infection of placental membranes elicited by history of rupture of membranes fever, high TLC count, local uterine tenderness or foul smelling discharge.
18.9	Cholestasis	Diagnosed by itching with more than normal liver enzynes.
18.10	Multiple Pregnancy	Complications like abnormal chorionicity, discordancy, twin to twin transfusion Syndrome (TTTS) monoamniotic twins, conjoint twins' etc.or due to higher order Multiple Pregnancies
18.11	Trauma	History of fall or injury/domestic violence/road side accidents etc. to the maternal abdomen during pregnancy.
18.12	IUFD	Fetal death during second / third trimester
18.13	Others	Any other complications.

E	Examination of the mother on a mother)	dmission (taken from the medical records of the
19	Physical examination	[Normal / If Abnormal] Specify i.e. pallor, edema, increased or decreased blood pressure, tachycardia, tachypnea
19.1	Weight / Height	
19.2	Pulse rate	
19.3	Blood pressure	
19.4	Respiratory rate	
19.5	Temperature	
19.6	Pallor	
19.7	Edema	
19.8	Cardiovascular system	Normal / Abnormal
19.9	Respiratory system	Normal / Abnormal
20	Abdominal Examination	
20.1	Fundal height (choose any one) Corresponding / less / More than POG	Taken in cm from symphysis pubis to fundus, usually correspond to POG after 28 weeks of gestation ,, disparity of 4 weeks is taken significant
20.2	<b>Fetus</b> (choose any one) Singleton /Multiple	As diagnosed ultra-sonologically
20.3	Presentation/Lie Cephalic/ Breech / Transverse	As confirmed from clinical examination and sonogram
20.4	Fetal Health Sound (choose any one) Present / Absent	As confirmed from clinical examination, through CTG or sonologically
20.5	Uterus / Scar tenderness	Yes / No
21	Vaginal examination	165 / 110
21.1	Bleeding per vaginal	Yes/No
21.2	Liquor	As confirmed from clinical examination
21.2	Clear/ Meconium/ Foul smelling	The Committee of the Co
21.3	Cord Prolapse	Sudden coming out of cord through vagina spontaneously or after leakage or trauma

F	Investigation of the mother	
22	Investigation	
22.1	Hb (gm/dl)	Record from details provided in file
22.2	Urine albumin / sugar Microscopy	Present/Absent. If present then mention the severity
22.3	Blood group & Rh typing	+ ve / -ve, ABO
	If Negative ICT	
22.4	VDRL/TPHA	+ ve / -ve
22.5	HIV	+ ve / -ve
22.6	GTT/GCT	Normal / abnormal
22.7	Others, specify	
23	Fetal screening	
23.1	1 <sup>st</sup> trimester	
	[Note down the risk of malformation and if high risk on dual (11-13 weeks) or triple screening (16-18 weeks) whether confirmed on chorion villus sampling/amniocentesis]	
23.1a	Dual marker	Normal /Abnormal /Not Done
		If abnormal, specify finding
23.1b	Ultrasound for Nuchal	Normal /Abnormal /Not Done
	translucency & nasal bone	If abnormal, specify finding
23.2	<b>2</b> <sup>nd</sup> <b>trimester</b> [note down any abnormality in growth parameters ,amount of liquor, location of placenta, no. of blood vessels in the umbilical cord or any congenital malformation in the fetus and its details]	
23.2a	Triplet test	Normal /Abnormal /Not Done
		If abnormal, specify finding
23.2b	Anomaly scan (level 2 ultrasound)	Normal /Abnormal /Not Done
		If abnormal, specify finding
23.3	3 <sup>rd</sup> trimester	
23.3a	Latest Growth Scan	Normal /Abnormal /Not Done
23.3b	Days ago	Date of ultrasound

G	Details of labor	
24	Period of Gestation (weeks)	Period of Gestation (POG) in week to be verified from history of last menstrual period (LMP), examination and early ultrasonography (where available). In case LMP is not known the dates need to be ascertained by detailed history specifically in the regional context.  E.g. in reference to a local event, festival, calendar month etc.
25	Type of labor	Spontaneous – Onset of labor pains on its ( <i>own if spontaneous move to 28</i> )  Induced – Artificial labor pains induced for termination of pregnancy
26	Indication for Induction of labor [Indicate the condition for which pregnancy was terminated]	HT/ Diabetes / IUGR/ Cholestasis/ PROM/ others specify
27	Method of induction of labour	Oxytocin / Prostaglandins
28	Partograph used[Partograph whether available in records]	Yes/ No if Yes, Normal / Abnormal
29	Intra-partum Fetal monitoring	Manual / Cardiotocograhy (CTG) / Both
30	Last CTG / manual record prior to IUFD	/ hours / prior
H.	<b>Delivery Details</b>	Date and time
31	Intra-partum Complications (choose any one)	Non progress of labor/Prolonged second stage/ Fetal distress/Obstructed labor/Cord complications/ Fever/Rupture uterus / Chorioamnionitis/Others/ Abruptio/Eclampsia
32	Mode of delivery	Select appropriate from vaginal/instrumental/abdominal
32.1	Vaginal	Delivery per vaginum
32.2	Instrumental	Instrumental - delivery by Forceps, outlet or midcavity/ventouse  Destructive operation-craniotomy/cleidotomy/ decapitation
		Destructive operation-procedures to diminish the bulk of the fetus so as to facilitate easy delivery through the birth canal, includes craniotomy (perforation on fetal head to evacuate cranial contents, cleidotomy (division of clavicle to reduce the bulk of shoulder girdle), decapitation (severing of the head from the trunk and delivering head and trunk separately).
32.3	Abdominal	Cesarean–Delivery of baby by surgical opening of the abdomen and uterus.  Elective-when operation is performed at a prearranged time during pregnancy  Emergency- when operation is performed due to unforeseen or acute obstetric emergency.  Laparotomy –Opening of abdominal cavity as in rupture uterus

32.3.1	Indications of cesarean/ Instrumental delivery	Dystocia –difficult labor characterized by abnormally slow progress. Include indications like non-progress, prolonged second stage obstructed labor, cephalopelvic disproportion, under this heading. APH-ante partum hemorrhage, specify placenta previa or abruption  Fetal distress include irregularities of fetal heart,
		meconium, non-reassuring NST
33	Duration of 1 <sup>st</sup> , 2 <sup>nd</sup> , & 3 <sup>rd</sup> stage	First stage – from start of labor pains till full dilatation of cervix.
		Second stage – From full dilatation of cervix till delivery of baby.
		Third stage-From delivery of the baby till delivery of the placenta.
34	Duration of rupture membranes	from the timing of rupture of membranes till delivery of the baby
35	Who Conducted the delivery	Doctor/Nurse (choose any one)
36	Maternal outcome	Maternal outcome –alive & well, alive but with serious
	(choose any one)	morbidity like acute renal failure, post Stroke deficit etc.or died.
I	(choose any one)  Baby Details	*
		etc.or died.
I	Baby Details	etc.or died.  Live birth/ Fresh stillbirth / Macerated Stillbirth  Note down birth weight in grams, OFC and length in
I 37	Baby Details Birth weight	etc.or died.  Live birth/ Fresh stillbirth / Macerated Stillbirth  Note down birth weight in grams, OFC and length in cms, apgar score
I 37 38	Baby Details Birth weight Sex	etc.or died.  Live birth/ Fresh stillbirth / Macerated Stillbirth  Note down birth weight in grams, OFC and length in cms, apgar score  Male-M/Female-F/Ambiguous-A
I 37 38	Baby Details Birth weight Sex Birth defect	etc.or died.  Live birth/ Fresh stillbirth / Macerated Stillbirth  Note down birth weight in grams, OFC and length in cms, apgar score  Male-M/Female-F/Ambiguous-A  Birth defect to be categorized as  Isolated-if it involves singe organ or system.  Multiple- if it involves multiple organs or systems.
I 37 38 39	Baby Details Birth weight Sex Birth defect	etc.or died.  Live birth/ Fresh stillbirth / Macerated Stillbirth  Note down birth weight in grams, OFC and length in cms, apgar score  Male-M/Female-F/Ambiguous-A  Birth defect to be categorized as  Isolated-if it involves singe organ or system.  Multiple- if it involves multiple organs or systems.  Syndromic-if it fits in to some syndrome
I 37 38 39	Baby Details Birth weight  Sex Birth defect  If birth Defect is yes in above option	etc.or died.  Live birth/ Fresh stillbirth / Macerated Stillbirth  Note down birth weight in grams, OFC and length in cms, apgar score  Male-M/Female-F/Ambiguous-A  Birth defect to be categorized as  Isolated-if it involves singe organ or system.  Multiple- if it involves multiple organs or systems.  Syndromic-if it fits in to some syndrome  on; Fill BD form at the end of this form  Tick whether
I 37 38 39 40 41	Baby Details Birth weight  Sex Birth defect  If birth Defect is yes in above option Examination  Liver ( size in cms &	Live birth/ Fresh stillbirth / Macerated Stillbirth  Note down birth weight in grams, OFC and length in cms, apgar score  Male-M/Female-F/Ambiguous-A  Birth defect to be categorized as  Isolated-if it involves singe organ or system.  Multiple- if it involves multiple organs or systems.  Syndromic-if it fits in to some syndrome  on; Fill BD form at the end of this form  Tick whether normal (N)/abnormal (AbN.)/not done (ND)

J	Investigations of baby	
42	Cord blood (choose any one)	Done/Not done / Not available
i.	Blood Group	
ii.	Hb ( Gm%)	
iii.	Bilirubin Mg %	
iv.	DCT	
V.	VDRL/ TPHA	
vi.	Rubella	
vii.	Toxoplasma	
viii.	CMV	
ix.	Parvovirus	
x.	Karyotyping	
xi.	Others, specify	
43	Infantogram (whole body X-ray) abnormal:	Yes / No /Not done ; If yes describe
K.	Placenta examination	
44	Weight(gm)	Weight of placenta in grams.
45	Morphology	Normal /Abnormal
46	Cord Insertion	Normal /Abnormal
47	Infarct	Yes/No
48	Chronicity of Multiple Pregnancy	Select from DADC/DAMC/MAMC
49	Membrane culture	Membrane culture-positive-if there is growth of any organism
50	Histopathology	Done /not done Suggestive of syphilis Y/N, mention accordingly
L	Autopsy	
51	External exam. only / conventional / minimally	Describe the method followed by the details of the report.
	invasive  Autopsy may be done where the obstretrician feels the need.	Consent has to be taken from the parents.Placenta should be sent along with the baby for examination. Ideal is to do a complete autopsy with the removal of brain and study of placenta.
	Autopsy is not needed if	Autopsy is mandatory in the following cases
	adequate and obvious maternal problems are present like –eclampsia,hyp ertension,abruption,placenta previa,cervical incompetence,scar rupture,ruptured uterus,maternal illness to account for still birth	<ol> <li>Congenital malformations</li> <li>Recurrent fetal death-after the obstretician has investigated thoroughly for a cause and found none.</li> <li>Hydrops fetalis-all cases of non immune hydrops</li> <li>Cases of IUGR where no cause is detactable</li> <li>Suspected infections</li> <li>Any Unexplained event e.g. failed resuscitation</li> <li>Term still birth/intrapartum death-unsuspected CMF's</li> </ol>

M	Family history	
52	Sociocultural factors and care seeking behavior for e.g. I Delay in recognizing the complication ii. Delay in decision to seek help iii. Delay in organizing the transport/or arrival of transport v. Delay in initiating treatment Other social factors Poverty, adherence to traditional rituals ,Unawareness, Heavy work during pregnancy, Domestic violence, Poor health infrastructure vi. Others (specify)	If patient is still admitted or family can be contacted, note down the details.On sociocultural factors and care seeking during pregnancy. TICK the appropriate one or more than one if required to finally arrive at the final conclusion
N	Cause of Fetal death	
53.1	Infections (choose any one)	Syphilis/ Malaria / Hepatitis /others Specify
53.2	Intrapartum (choose any one)	Mal-presentation/prolonged labor/Obstructed labor/ Fetal distress
53.3	Fetal (choose any one)	Birth defects/Iso-immunization /Hydrops/Extreme prematurity/Congenital Rubella Syndrome / Unknown
53.4	Cord complications (choose any one)	Knots/Loops/Abnormal insertion/Cord Prolapse
53.5	Placental (choose any one)	Abruption/Infraction/Thrombi/Previa/Insufficiency
53.6	Maternal (choose any one)	Hypertensive disorder/Diabetes/Infections/Others If others, specify
53.7	Unknown (choose any one)	Unexplained
	Associated conditions	
53.8	Fetal (choose any one)	IUGR/ Multiple pregnancy
53.9	Maternal (choose any one)	Anemia/Poverty/Smoking/Trauma/Alcohol
53.10	Any other	
0	Experts Opinion - Still Birth - P	reventable ( Yes/ No )
56.1	Level of care	Level of care to be ascertained critically from interview of the patient, family,health Care personnel and records
56.2	Patient reported late to health facility	
56.3	Referred to appropriate center	
56.4	Reached appropriate referral center (in hours)	
56.5	Whether fetal heart present at the time of admission to referral center	
56.6	Cause of IUD at referral center if FHS present at the time of admission	