Annexure 3: Maternal death review - Line list format for maternal death review at district lev el

District/Corporation											
Date of MDA											
Number of Deaths audited											
SN	Name	Age	Date of Death	hospital audit done? (Y/N)	Community audit done? (Y/N)	Cause of Death	Reasons for the cause leading to death	Delay	Reasons for delay	Proposed corrective measures	Activities proposed for corrective measures

Annexure 4: Maternal death review - Plan of action and compliance report of maternal death review meeting

District/Corp oration			
Date of MDA			
Number of Deaths audited			
SN	**Summary Points**	**Compliance**	**Remarks**
1	Number of of audit completed		
2	What are the common preventable reasons leading to deaths		
3	What are the common problems identified with service deliveries		
4	What are the common areas involved		
5	What are the programs involved		
6	What are the common preventive measures suggested		
7	What are the activities will be implemented in the district to prevent		
8	What was the sugegstions in last d eath audit		
9	What was the actions teken on last meeting minuites		
10	What is the improvement seen		

Maternal Death Causes Details and Preventive action

Maternal Death Causes						
SN	**Important Causes**	**Definition**	**Causes**	**Risk Factors**	**Diagnosis/ Identification**	**Prevention**
1	APH		APH - placenta previa and placental abruption, Primary/Immediate PPH - Occurring during delivery till 24 hours postpartum 4'T's 1. Tone - Atonic PPH - Most common cause (80-90%) 2. Tears or trauma 3. Tissue - retained or incomplete placenta, membranes 4. Thromboembolic - Coagulopathy	1.APH- abruption in a previous pregnancy, recurrent abruption, 2. Other risk factors for placental abruption include: pre-eclampsia, fetal growth restriction, non-vertex presentations, polyhydramnios, advanced maternal age, multiparity, low body mass index (BMI),pregnancy following assisted reproductive techniques, intrauterine infection, premature rupt ure of membranes, abdominal trauma (both accidental and resulting from domestic violence), smoking and drug misuse (cocaine and amphetamines) during pregnancy 3.Other risk factors for placenta previa: Previous caesarean sections, Previous termination of pregnancy, Multiparity, Advanced maternal age (>40 years), Multiple pregnancy.		PPH 1. Focused ANC care 2. Anemia prevention and early detection & complete treatment 3. Identification of previous and current co-morbidities 4. Ensuring skilled attendant at birth, 5. high-risk deliveries to be conducted at FRUs

Maternal Death Causes						
SN	Important Causes	Definition	Causes	Risk Factors	Diagnosis/ Identification	Prevention
	PPH	PPH - 1. Loss of 500 ml or more of blood during delivery and up to 6 weeks after delivery (may be less in anemia) OR 2. Blood loss sufficient to cause signs and symptoms of hypovolemia OR 3. Woman soaks 1 pad or cloth in <5 min" Secondary/Delayed PPH - From 24 hours postpartum till 42 days or 6 weeks 1. Infection in the uterus 2. Retained placental fragments		1. Anemia in pregnancy 2. Multiple Pregnancy 3. Preeclampsia 4. Fetal Macosomia 5. Prolonged third stage of labor 6. Retained Placenta7. Episiotomy 8.Placenta accreta 9. Perineal laceration 10. Failure to progress in second stage of labor 11. Previous PPH 12. women with preexisting bleeding disorders and taking anticoagulants	PPH - 1.Loss of 500 ml or more of blood during delivery and up to 6 weeks after delivery (may be less in anemia) OR 2. Blood loss sufficient to cause signs and symptoms of hypovolemia OR 3. Woman soaks 1 pad or cloth in <5 min	PPH 1. Focused ANC care 2. Anemia prevention and early detection & complete treatment 3. Identification of previous and current co-morbidities 4. Ensuring skilled attendant at birth, 5. high-risk deliveries to be conducted at FRUs 5. Early identification of prolonged and obstructed labor by partograph. Avoid exhaustion, dehydration. 6. Avoiding unnecessary augmentation, fundal pressure and episiotomies 7. Controlled head delivery with perineal support 8. Active Management of Third stage of Labor (AMTSL) 9. Checking of completeness of placenta 10. Routine immediate postpartum care 11. monitoring: 4th Stage of Labor - Observe vital signs, atony, bleeding and treat 12. Early initiation of breastfeeding 13 All labor room should be equipped with PPH Box. 14. Postpartum patient - monitored

Maternal Death Causes						
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						for at least 2 hours after delivery. 15. Ensure properly applied TVUAC (transvaginal uterine artery clamp) clamps, UBT, condom tamponade or effective packing should be done depending on the type of PPH along with IV Fluids 16. BSU to be made operational in all FRU. 17.Community awareness-BCC & IEC

Maternal Death Causes						
SN	**Important Causes**	**Definition**	**Causes**	**Risk Factors**	**Diagnosis/ Identification**	**Prevention**
2	Hypertensive Disorders in Pregnancy	1. Raised BP in pregnancy: The BP is 140/90 mmHg or more. The systolic blood pressure has increased by 30 mmHg, & diastolic blood pressure has increased by 15 mmHg. 2.Pre-eclampsia - Hypertension associated with proteinuria and oedema occurring primarily in Nulliparous after 20th week's gestation and most frequently near term. 3.Eclampsia - Eclampsia is the occurrence of seizures that cannot be attributed to any other cause in a pre-eclampsia patient		For preeclampsia - Risk factors – 1. Nulliparity (primi) 2. Multifetal pregnancy 3.polyhydramnios 4.history of chronic htn 5. Maternal age < 18 0r > 35 yrs 6.obesity 7. H/o diabetes, preeclampsia 8. Family h/o preeclampsia in first degree relative **Medical risk factors for preeclampsia** 1. Chronic hypertension 2. Secondary causes of chronic hypertension such as hypercortisolism, hyperaldosteronism, pheochromocytoma, or renal artery stenosis 3. Preexisting diabetes (type 1 or type 2), especially with microvascular disease 4. renal disease 5. Systemic lupus erythematosus 6. Obesity 7.Thrombophilia **Placental/fetal risk factors for preeclampsia** 1. Multiple gestations 2. Hydrops fetalis 3. Gestational trophoblastic disease (GTD)Triploidy	DIAGNOSTIC CRITERIA FOR PREECLAMPSIA - Minimum criteria - BP >140/90mmHg after 20wks- Proteinuria >300mg/24hrs or >1+ dipstick Diagnostic criteria for EclampsiaSeizures that cannot be attributed to any other cause in a patient with pre-eclampsia.	

Maternal Death Causes						
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3	Sepsis	Life threatening condition defined as organ dysfunction resulting from infection during pregnancy, childbirth, postabortion, or postpartum	Aerobic: 1. Group A Streptococci: (Toxic shock syndrome, necrotizing fasciitis in Episiotomy wounds, C section wound 2. Group B Streptococci: (Neonatal deaths, septicemia, RD, Meningitis) 3 Others: S aureus, E coli, klebsiella, pseudomonas Anaerobic: Streptococci, Bacteroides, clostridia	1. Malnutrition 2. Anemia, UTI, TB,DM, Malaria 3. Preterm labor 4. PROM (chorioamnionitis) 5. Repeated PV exam 6. Traumatic delivery 7. Retained products of conception 8. Placenta previa 9. APH/PPH 10. C section 11. Forgotten mop / cotton in vagina, abdomen	SIRS - Systemic Inflammatory Response Syndrome 1. Temperature - >100.4 or< 96.8 2. RR: >22 3. HR: >90 4. WBC: >12000 OR <4000 10% Band cells 5. PCO2: <32 mm/hg Sepsis - SIRS (any 2 signs) + Confirmed or Suspected Infection	**Antenatal:** Improving nutritional status, Hb, treating infective foci **Intra natal:** Full surgical asepsis, hand hygiene, PV exam 4 hourly in first stage of labor in low-risk cases 1. No PV exam without hand hygiene 2. Use of sterile gloves for internal exam 3. Catheterization by NO TOUCH method 4. Allowing spontaneous delivery of placenta…NO routine MRP in c section 5. No mopping of uterine cavity in C-section 6. Tissue respect while suturing … NO strangulation 7. Rule out RTI/STI before IUCD insertion 8. NO TOUCH TECHNIQUE for IUCD insertion 9. Evacuation procedure by MVA only 10. Checking IV site daily. 11 **Antibiotic prophylaxis:** **Inj cephalosporine- what is the reference** 1 hr. before skin incision for c section, PPROM, MRP, 3rd 4th degree

Maternal Death Causes						
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						tear, mother with GBS colonization 12. Vaginal cleaning with povidone iodine before c section 13. Postpartum period - Use of sterile vaginal pads Other Actions: 1. Ensure 100% institutional deliveries. 2. Follow up during post-natal period 3. Signs of sepsis should be picked up at the earliest for timely diagnosis and intervention. 4.Antibiotic to be started by ANM before referral 4.Proper sterilization of instruments to be ensured and adequate sets of instruments to be kept ready after autoclaving depending on the number of delivery load.

Maternal Death Causes						
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4	Anemia	Anemia is defined as decrease in the oxygen carrying capacity of the blood due to decrease in number of RBCs or hemoglobin or both. 1.In adult female less than 12 gm Hb % in peripheral blood is called anemia. 2.As per WHO definition...Hb % ...<11 gm in 1st and 3rd trimester <10.5 gm in 2nd trimester. 3.Degrees of anemia: Mild anaemia-9 to 11 gm Hb, Moderate-7.1 to 9 gm Hb Severe-<= 7 gm Hb Very severe- <= 4 gm Hb	Causes of anemia: 1)Physiological. Due to physiological hemodilution during pregnancy. Increase in plasma volume as compared to RBC mass. 2) Nutritional-Iron deficiency. Folate &/or vit B12 deficiency,Dimorphic 3) Hemorrhagic...Acute Chronic 4) Haemoglobinopathies 5) Hemolytic Congenital Acquired 6) Aplastic anemia.	Risk factors: Major cause for anemia in pregnancy is Nutritional anemia. 1) Mothers eating diet with low iron intake. 2) mothers with depleted iron stores. 3) poor absorption because Indian diet is predominantly vegetarian which contains inhibitors like phytates in cereals, tannins in tea, polyphenols in coffee, oxalates in vegetables, phosphates. 4) poor utilization-as the bioavailability of non-heme iron (vegetarian diet) is poor and is slowly absorbed. 5) Poor reserve of iron- because there is inadequate nutrition during adolescent period 6) Increased loss-due to high incidence of malaria and Hook worm infestation, Excessive menstrual loss before pregnancy.	Diagnosis/ identification: 1.Clinical history of fatigue, weakness, dizziness, giddiness, headache, dyspnea on exertion, palpitation, edema 2.Clinical examination:Pallor, glossitis, stomatitis, koilonychia, tachycardia. 3.Investigations: 1) For diagnosis and degree of anemia- Hb estimation Hb < 11gm RBC count...<3 million PCV-<30 % 2) For Type of anemia: A) peripheral smear (morphology of RBCs) B) Hematological indices (MCV, MCH, MCHC) C) serum iron D) Total iron binding capacity E) serum ferritin level F) bone marrow examination (not routinely done) 3) For diagnosing cause of anemia: A) urine examination. Routine and microscopy B) stool examination...ova, cysts, occult blood C) serum protein **Special tests:** Serum folate Serum vit B12 Serum bilirubin Coombs test-Sickle test Hb, electrophoresis ,NESTROF test Red cell osmotic fragility test	1. Screening of adolescent girls in school and giving iron supplements 2. IFA supplementation to women in reproductive group as per AMB guidelines. 3. Education and motivation for taking iron rich diet 4. Change in food habits i.e., avoiding tea or coffee for at least 2 hours after meals, Cooking in iron utensils 5. Fortification of food by iron and fortification of common salt by iron 6. Treatment and prevention of Anemia by providing IFA supplementation in ANC and PNC as per AMB guidelines. 7. Prevention of hookworm and malaria. 8. Ensure Hb level estimation of pregnant women (Minimum 4) during ANC visits. 9. Integrated approach to prevent maternal anemia and treatment of severe anemic mothers by Inj Iron sucrose at PHC level. 10. Severely anemic Pregnant women (<5 gm % Hb) should be referred urgently to DH/FRU for

Maternal Death Causes						
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						evaluation and blood transfusion 11. Screening of Sickle cell disease 12. Antepartum management of SCD pregnant women. 13. Adequate birth spacing 14. Follow-up by ASHA/ANM/CHO of high-risk mother ie severe anemic for complete treatment 15. Conducting high risk delivery at FRUs having blood transfusion services

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SN	Important Causes	Definition	Causes	Risk Factors	Diagnosis/ Identification	Prevention
5	Abortion	Abortion is defined as the spontaneous or induced termina-tion of pregnancy before fetal viability. World Health Organization defines abortion as pregnancy termination before 20 weeks' gestation or with a fetus born weighing < 500 g.		Spontaneous abortion 1. Fetal anomalies Chromosomal and Structural 2. Uterine defects. Congenital Leiomyomas, Incompetent cervix 3. Placental causes- Abruption, previa, defective spiral artery transformation, Chorioamnionitis 4. Maternal disorders. Autoimmune, Infections, Metabolic 5.Induced Abortion - Therapeutic or Elective		1. Preventing unintended pregnancy 2. Increase contraceptive services 3. Training of staff & medical officers 4. Transfer patients to a medical facility that is capable of providing emergency care when a complication arises 5. Postabortion family planning counseling 6. Follow up of abortion cases by ASHA /ANM/CHO for any complications