

**Summer Training at
Jaipur under NRHM, Rajasthan
(April 9 – June 1, 2012)**

**A Study on Current System of Diagnosis, Tracking, Monitoring, Outcome
and Follow Up of High Risk Pregnancies Due to Anaemia by ANMs at SC**

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**Under the guidance of
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**Post Graduate Diploma in Hospital and Health Management
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**Institute of Health Management Research,
Jaipur
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Certificate

This is to certify that Dr. Pawan Kumar Tiwari, student of Institute of Health Management Research, Jaipur has undergone Summer Training under NRHM Rajasthan, at Jaipur from 9th April, 2012 to 1st June, 2012.

The candidate himself carried out the project. His approach to the study has been sincere, scientific and analytical. This summer training is partial fulfillment of the course requirement is recommended for the award of Post Graduate Diploma in Health and Hospital management.

I wish him success in all her future endeavors.



Dr. P.R. Sodani,
Dean (Academic and Students Affairs)
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ACKNOWLEDGEMENT

Completion of any project is like another feather in the cap of an individual. For this consistent hard work, desired to succeed & last but not the least blessings of Lord Almighty are essential ingredients.

It gives me immense pleasure to complete my entire project which is a study on current system of diagnosis, tracking, monitoring, outcome and follow up of high risk pregnancies due to anaemia by ANMs at SC during my stay of 2 months in NRHM, Rajasthan, at Jaipur.

For the successful accomplishment of this task I am really grateful to my mentor Dr. Tanjul Saxena for her valuable suggestion given to me to complete my summer internship.

I would also like to pay my heartiest thanks to my mentor at NRHM, Dr. Noopur, Joint Director RCH & Dr. Pradeep Kumar Sarda, Director RCH for his kind support, cooperation & guidance given to me for the successful completion of my project.

Last but not the least I am really thankful to the ANMs, other staff & consultants for cooperating in my study & making my study a memorable experience for lifetime.

With regards

Pawan Kumar Tiwari

ACRONYMS / ABBREVIATIONS

S.NO	ACRONYMS	FULL FORM
1.	AIP	Acute Intermittent Porphyria
2.	ASHA	Accredited Social Health Worker
3.	AWW	Aanganwadi Worker
4.	CS	Caesarean Section
5.	Hb	Hemoglobin
6.	HIV	Human Immunodeficiency Virus
7.	AIDS	Acquired Immuno Deficiency Syndrome
8.	IFA	Iron & Folic Acid
9.	PIH	Pregnancy Induced Hypertension
10.	PROM	Premature Rupture of Membrane
11.	PRI	Panchayati Raj Institution
12.	HRP	High Risk Pregnancy
13.	RTI	Reverse Transcriptase Inhibitor
14.	STI	Sexually Transmitted Infections
15.	SC	Sub Centre
16.	LBW	Low Birth Weight
17.	VHSC	Village Health Sanitation Committee

Work Schedule

S.No	Date	Department
1.	9 -13 APRIL,2012	Preparatory activity
2.	16-17 APRIL,2012	JSY
3.	18-19 APRIL, 2012	Maternal Death Audit
4.	20 APRIL, 2012	Maternal Health
5.	23 APRIL, 2012	Immunization
6.	24-25 APRIL, 2012	ASHA
7.	26-27 APRIL ,2012	VHSC
8.	30 APRIL-1MAY,2012	Child Health
9.	2 MAY.2012	DEO Cell (PCTS)
10.	3 MAY,2012	MMJRK
11.	4 MAY,2012	URCH, ARSH
12.	7-8 MAY,2012	RSACS
13.	9 MAY,2012	NCD
14.	10 MAY,2012	TB & ATC Cell
15.	11 MAY, 2012	Malaria, Leprosy & Blindness Cell
16.	14 -18 MAY, 2012	Field Visit in Baran District
17.	21-25 MAY , 2012	Project Work
18.	28 MAY- 1 JUNE,2012	REPORT Writing

List of Persons Interacted during the Training Period

S.No.	Name	Designation
1.	Ms. Gayatri Rathore	Mission Director, NRHM Rajasthan
2.	Dr. B.R.Meena	Director, Public Health, NRHM Rajasthan
3.	Dr. P. K. Sharda	Director, RCH
4.	Dr. Noopur	Joint Director, RCH
5.	Dr. Naresh Kumar	Nodal officer –JSY
6.	Dr. Indra Gupta	Nodal officer- RTI/STI/SBA/MDR
7.	Dr. Giriraj Sharma	Consultant, Maternal Health
8.	Dr. L.L. Dautania	Deputy Director, Immunization
9.	Dr. R.S. Rathore	State Immunization Officer
10.	Ms. Sushrita Roy	Consultant ASHA
11.	Ms.Vaidehi Agnihotri	Consultant VHSC
12.	Mr. Manoj	Consultant Child Health
13.	Ms.Nalini Khatri	Programme Officer (IMEP)
14.	Mr. D.P.Kanoongo	Consultant MMJRK
15.	Ms.Shikha Sharma	Consultant Urban RCH/Quality Control Assurance/Anaemia Control Program
16.	Ms. Archna Sharma	Consultant, ARSH
17.	Mr. K.K. Gadioke	Finance Advisor
18.	Mr. J P Jat	State Demographer
19.	Mr. Krishna Ram	Incharge, PCPNDT
20.	Dr. Alka Sharma	Assistant Project Director. , RSACS
21.	Mr. Ravi Gupta	PPTCT Consultant
22.	Mr. Neeraj Gupta	Condom promotion officer
23.	Mr Prakash Narwani	Monitoring and Evaluation Officer
24.	Mr R.K.Soni	Assistant Director, Nursing
25.	Dr.Pratap singh dutad	Additional Director, NCD
26.	Dr.P.C.Dhandoria	State Leprosy Officer
27.	Mr.Narendra Singh	State Consultant Tobacco Control
28.	Dr.K.N.Gupta	State Tuberculosis Officer
29.	Ms.Priyanka Kapoor	Consultant HRD
30.	Ms.Vaishali Sharma	Consultant IEC
31.	Dr. Renuka Meghwal	Medical officer, PHC Sundalak
32.	Mr. Pushpdayal	ASHA Supervisor, PHC Sundalak
33.	Ms. Jyoti	ANM, PHC Sundalak
34.	Ms.Noorjahan	ANM, SC Melkhedi
35.	Ms. Lalita	ANM,SC Melkhedi

36.	Ms.Premrata	ASHA, SC Melkhedi
37.	Ms.Indra Meena	AWW, Melkhedi
38.	Ms.Kanti	Anganwadi Sahayika, Melkhedi
39.	Ms.Indra Meghwal	Anganwadi Sathin, Melkhedi
40.	Dr. Madhu sharma	Medical officer, PHC Koyla
41.	Ms. Nilima	ANM, PHC Koyla
42.	Ms. Sobhagayvati	ANM, SC Badagaon
43.	Ms. Meena	ASHA, SC Ranwasi
44.	Ms. Kusum	ANM, SC Ranwasi

ORGANISATION OVERVIEW

The National Rural Health Mission (NRHM) is a National effort at ensuring effective healthcare through a range of interventions at individual, household, community, and most critically at the health system levels. Despite considerable gains in health status over the past few decades in terms of increased life expectancy, reductions in mortality and morbidity serious challenges still remain. These challenges vary significantly from state to state and even within states.

There has been a progressive decline in budgetary allocation for public health in the country from 1.3% of GDP in 1990 to 0.9% in 1999. Rising inequities are another area of concern. Studies demonstrate that curative services favor the rich over the poor. Only one tenth of the population is covered by any form of health insurance thereby exposing the large majority to the risk of indebtedness in the event of a major illness in the family. Operational integration in policy and programme between various vertical programmes within the health sector, and between health and other related sectors such as drinking water, sanitation, and nutrition has been limited, resulting in a lack of holistic approaches to health. A number of States particularly in North, East and North Eastern parts of the country have stagnant health indicators and continue to grapple with significant morbidity and mortality. The causes for this basically lie in socio-economic factors, under performance of health systems and weak institutional framework.

The National Common Minimum Programme spells out the commitment of the Government to enhance Budgetary Outlays for Public Health and to improve the capacity of the health system to absorb the increased outlay so as to bring all round improvement in public health services. This Mission seeks to provide effective health care to the rural population, especially the disadvantaged groups including women and children, by improving access, enabling community ownership and demand for services, strengthening public health systems for efficient service delivery, enhancing equity and accountability and promoting decentralization.

Key Components & Strategies:

The NRHM provides broad operational framework for the Health Sector. Suggestive guidelines have been issued on key interventions like ASHA, Indian Public Health Standards (IPHS), institutional deliveries, immunization, preparation of District Action Plan, role of Panchayati Raj Institutions etc. The States shall have flexibility to project operational modalities in their State Action Plans, which would be decided in consultation with the Mission Steering Group.

Core strategies of NRHM include:

- Increasing Community ownership by vesting responsibility with PRIs.
- Decentralized village and district level health planning and management.
- Appointment of Accredited Social Health Activist (ASHA) to facilitate access to health services.

- Strengthening the public health service delivery infrastructure, particularly at village, primary and secondary levels.
- Mainstreaming AYUSH.
- Improved management capacity to organize health systems and services in public health.
- Emphasizing evidence based planning and implementation through improved capacity and infrastructure.
- Promoting the non-profit sector to increase social participation and community empowerment, promoting healthy behaviors, and improving intersectional convergence.

Supplementary Strategies:

- Regulation of the private sector to improve equity and reduce out of pocket expenses.
- Foster public–private partnerships to meet national public health goals.
- Re-orienting medical education.
- Introduction of effective risk pooling mechanisms and social insurance to raise the health security of the poor.
- Taking full advantage of local health traditions.

The goals of NRHM are outlined below:

- Reduction in Infant Mortality Rate and Maternal Mortality Ratio by at least 50% from existing levels in next seven years.
- Universalize access to public health services for Women’s health, Child health, water, hygiene, sanitation and nutrition.
- Prevention and control of communicable and non-communicable diseases, including locally endemic diseases.
- Access to integrated comprehensive primary healthcare.
- Ensuring population stabilization, gender and demographic balance.
- Revitalize local health traditions and mainstream AYUSH.
- Promotion of healthy life styles.

The Mission outcomes are expected to follow a phased approach and are at two levels:

1. National Level

- Infant Mortality Rate to be reduced to 30/1000 live births.
- Maternal Mortality Ratio to be reduced to 100/100,000.
- Total Fertility Rate to be brought to 2.1.
- Malaria mortality reduction rate –50% up to 2010, additional 10% by 2012.
- Kala Azar to be eliminated by 2010.
- Filaria/Microfilaria reduction rate: 70% by 2010, 80% by 2012 and elimination by 2015.
- Dengue mortality reduction rate: 50% by 2010 and sustaining at that level until 2012.
- Japanese Encephalitis mortality reduction rate: 50% by 2010 and sustaining at that level until 2012.

- Cataract Operation: increasing to 46 lakh per year until 2012.
- Leprosy prevalence rate: to be brought to less than 1/10,000.
- Tuberculosis DOTS services: from the current rate of 1.8/10,000, 85% cure rate to be maintained through the entire Mission period.
- 2000 Community Health Centers to be upgraded to Indian Public Health Standards.
- Utilization of First Referral Units to be increased from less than 20% to 75%.
- 250,000 women to be engaged in 18 states as Accredited Social Health Activists (ASHA).

2. Community Level

- Availability of trained community level worker at village level, with a drug kit for generic ailments.
- Health Day at Anganwadi level on a fixed day/month for provision of immunization, ante/post natal checkups and services related to mother & child healthcare, including nutrition.
- Availability of generic drugs for common ailments at Sub-centre and hospital level.
- Good hospital care through assured availability of doctors, drugs and quality services at PHC/CHC level.
- Improved access to Universal Immunization through induction of Auto Disabled Syringes, alternate vaccine delivery and improved mobilization services under the programme
- Improved facilities for institutional delivery through provision of referral, transport, escort and improved hospital care subsidized under the Janani Suraksha Yojana (JSY) for the Below Poverty Line families.
- Availability of assured healthcare at reduced financial risk through pilots of Community Health Insurance under the Mission.
- Provision of household toilets.
- Improved Outreach services through mobile medical unit at district-level.

Project

INTRODUCTION:

For many women, pregnancy is a time of unparalleled joy and expectation. But for others, especially those with chronic medical conditions or who are expecting multiples, pregnancy can be a time of intense fear and uncertainty. In those instances, both mother and child need specialized care to ensure good health. India, like other developing countries, has a very high perinatal mortality, interwoven with a high illiteracy, ignorance, teeming population and lack of facilities and resources. The ominous web of factors makes almost 30% of pregnant mothers high risk, who in turn jeopardize the health and life of their baby during perinatal period.

HIGH RISK PREGNANCY:

Definition- A high risk pregnancy is one in which some condition puts the mother, the developing fetus, or both at higher-than-normal risk for complications during or after the pregnancy and birth.

Description- A pregnancy can be considered a high-risk pregnancy for a variety of reasons. Factors can be divided into maternal and fetal.

A) Maternal factors include age (younger than age 15, older than age 35); weight (pre-pregnancy weight under 100 lb or obesity); height (under five feet); history of complications during previous pregnancies (including stillbirth, fetal loss, preterm labor and/or delivery, small-for-gestational age baby, large baby, pre-eclampsia or eclampsia); more than five previous pregnancies; bleeding during the third trimester; abnormalities of the reproductive tract; uterine fibroids; hypertension; Rh incompatibility; gestational diabetes; infections of the vagina and/or cervix; kidney infection; fever; acute surgical emergency (appendicitis, gallbladder disease, bowel obstruction); post-term pregnancy; pre-existing chronic illness (such as asthma, autoimmune disease, cancer, sickle cell anemia, tuberculosis, herpes, AIDS, heart disease, kidney disease, Crohn's disease, ulcerative colitis, diabetes).

B) Fetal factors include exposure to infection (especially herpes simplex, viral hepatitis, mumps, rubella, varicella, syphilis, toxoplasmosis, and infections caused by coxsackievirus); exposure to damaging medications (especially phenytoin, folic acid antagonists, lithium, streptomycin, tetracycline, thalidomide, and warfarin); exposure to addictive substances (cigarette smoking, alcohol intake, and illicit or abused drugs). A pregnancy is also considered high-risk when prenatal tests indicate that the baby has a serious health problem (for example, a heart defect). In such cases, the mother will need special tests, and possibly medication, to carry the baby safely through to delivery. Furthermore, certain maternal or fetal problems may prompt a physician to deliver a baby early, or to choose a surgical delivery (cesarean section) rather than a vaginal delivery.

Most women will see one healthcare provider during pregnancy, either an obstetrician, a midwife, or a nurse practitioner. Women who have a medical problem may need to see a medical specialist as well. Women diagnosed with a high-risk pregnancy may also need the expert advice and care of a perinatologist. A perinatologist is a medical doctor (obstetrician) who specializes in the care of women who are at high risk for having problems during pregnancy. Perinatologists care for women who have preexisting medical problems as well as women who develop complications during pregnancy.

- **Diagnosis-** A woman with a high-risk pregnancy will need closer monitoring than the average pregnant woman. Such monitoring may include more frequent visits with the primary caregiver, tests to monitor the medical problem, blood tests to check the levels of medication, amniocentesis, serial ultrasound examination, and fetal monitoring. These tests are designed to track the original condition, survey for complications, verify that the fetus is growing adequately, and make decisions regarding whether labor may need to be induced to allow for early delivery of the fetus.
- **Treatment-** Treatment varies widely with the type of disease, the effect that pregnancy has on the disease, and the effect that the disease has on pregnancy. Additional tests may help determine the need for changes in medication or additional treatment.
- **Prognosis-** The prognosis depends in large part on the specific medical condition. Some medical conditions make it difficult to get pregnant and lead to a higher risk of problems in the baby. An example of this type of condition is thyroid disease. There are many medical conditions that usually do not interfere with pregnancy, but are themselves affected by pregnancy. This group includes asthma, epilepsy, and ulcerative colitis. There is also a group of medical conditions that can have a major impact on pregnancy. Women with lupus (disease caused by alterations in the immune system that result in inflammation of connective tissue and organs) or kidney disease face real risks during pregnancy. Pregnancy can cause their symptoms to worsen significantly and can lead to serious illness. Because these diseases can affect the mother's ability to supply oxygen and nutrients to the baby through the placenta, they can cause problems for the baby as well. These babies may not be able to grow and gain weight properly (intrauterine growth retardation). There is also an increased risk of stillbirth. Diabetes is a medical condition that is both affected by pregnancy and affects pregnancy.

Most medical conditions do not lead to complications in pregnancy. With frequent visits to healthcare providers, and careful attention to medication, women with medical problems usually enjoy healthy, successful pregnancies. There are a few medical conditions that can cause health risks to both mother and baby during pregnancy. Women with these medical problems should consider

these risks before deciding to become pregnant. Many of these women will benefit from the care of a perinatologist during pregnancy. Only rarely (in the case of severe heart disease, for example) are the risks to the mother so high that she should not consider pregnancy at all.

- **Prevention-** A pre-pregnancy visit with a healthcare provider is especially important for a woman who has a medical problem. The doctor will discuss how women with this condition usually fare during pregnancy. For some diseases (such as lupus), pregnancy can mean increased risk of health problems for mother and baby.

Sometimes, the medication a woman needs to control a medical condition can cause problems for the baby. There may be another medication available that is safer for use in pregnancy. In some cases there is no other medication, and a woman must weigh the risks to the baby when deciding whether or not to become pregnant.

A woman who has not had a pre-pregnancy visit should contact a healthcare provider as soon as she learns she is pregnant. Often, the provider will schedule the first prenatal visit within a day or two, instead of waiting until eight to 10 weeks of pregnancy. This is because certain medical conditions can increase the risk of miscarriage. The provider will want to be sure that any medication is adjusted properly to increase the chance of having a successful pregnancy.

ANAEMIA:

Definition- Anaemia is defined as reduction in circulating haemoglobin mass below the critical level. The normal haemoglobin (Hb) concentration in the body is between 12-14 gm percent. WHO has accepted up to 11gm percent as the normal Hb level in pregnancy. Therefore any haemoglobin level below 11gm in pregnancy should be considered as anaemia. However in India and most of the other developing countries the lower limit is often accepted as 10 gm percent.

Degree of Anaemia- Anaemia is often classified as mild degree (9-11 gm %), moderate (7-9 gm %), severe (4-7 gm %) and very severe (<4gm %).

ANAEMIA & PREGNANCY:

Incidence- Anaemia in pregnancy is present in very high percentage of pregnant women in India. Exact data is not available about the prevalence of nutritional anaemia. However according to WHO, the prevalence of Anaemia in pregnancy in South East Asia is around 56%. In India incidence of anaemia pregnancy has been noted as high as 40-80%.

Magnitude of the problem- Pregnancy anaemia is one of the important public health problems not only in India but also in most of the south East Asian countries. About

4- 16% of maternal death is due to anaemia. It also increases the maternal morbidity, fetal and neonatal mortality and morbidity significantly. Anemia in pregnancy is a condition with effects that may be deleterious to mothers and fetuses. Indeed, it is a known risk factor for many maternal and fetal complications.

Maternal risk during Antenatal period: poor weight gain. Pre term labours, PIH, placenta previa, eclampsia, PROM etc.

Maternal risk during intranatal period: Dysfunctional labour, intranatal hemorrhage, shock, anesthesia risk, cardiac failure.

Maternal risk during postnatal period: Postnatal sepsis, sub involution, embolism.

Fetal and Neonatal risk: Complications include prematurity, low birth weight, poor Apgar score, fetal distress, neonatal distress requiring prolonged resuscitation, and neonatal anemia due to poor reserve. Infants with anemia have higher prevalence of failure to thrive, poorer intellectual developmental milestones, and higher rates of morbidities and neonatal mortalities than infants without anemia. Moreover, babies whose mothers had AIP during their first trimester in utero experienced higher rates of cardiovascular morbidities and mortalities in their adult lives than babies whose mothers did not have AIP.

CAUSES:

1) Physiological Pregnancy causes a state of hydraemic plethora. There is disproportionate increase of plasma volume during pregnancy leading to apparent reduction of RBC, haemoglobin and haematocrit value. Hb is consequently reduced to a varying extent occasionally as low as 80%. The dilution picture is normochromic and normocytic. This is so called physiological anaemia.

2) Acquired-Nutritional

- a) Iron deficiency anaemia (60%).
- b) Macrocytic anaemia (10%) due to deficiency of folic acid and/or vitaminB12.
- c) Dimorphic and protein deficiency anaemia (30%) both due to deficiency of iron and folic acid and /or vitaminB12.
- d) Protein deficiency due to protein deficiency in extreme malnutrition.

3) Hemolytic or Haemorrhagic (due to acute blood loss,; chronic hook worm, bleeding piles).

4) Iron and folate deficiency is by far the most important etiological factor. Haemolytic anaemia may be caused by haemoglobinopathies, drug reaction or infestation with malaria parasites.

RISK FACTORS:

Sociodemographic factors (age, level of formal education, marital status, areas and cities of residence).

Obstetrical factors (gravidity, parity, history of previous preterm or age deliveries, plurality of pregnancy multiple or singleton).

Behavioral factors (smoking or tobacco usage, alcohol usage, utilization of prenatal care services).

Medical conditions (diabetes, renal or cardio-respiratory diseases, chronic hypertension AIP anemia in pregnancy).

CLINICAL PRESENTATION:

To start with the pregnant women with anaemia may not have any symptom as the body system get adjusted to reduce haemoglobin mass. However she may represent with vague complain of ill health, fatigue, loss of appetite, digestive upset, dyspnoea, palpitation etc. Clinical examination may reveal pallor, pale nails, koilonychias, pale tongue etc. In severe cases there may be oedema also.

INVESTIGATIONS:

Hemoglobin estimation and study of peripheral smear is good indicator for diagnosis of anemia. There may be several methods for estimation of Hb. However in spite of limitation of present method of Hb estimation, it is a useful method of diagnosis for anaemia. Peripheral smear examination is another simple method for diagnosis of anaemia. If the peripheral smear looks pale, there is hypochromia (large central vacuoles) and microcytosis (small deformed red cells). It suggests iron deficiency. In case of megaloblastic anaemia, there would be microcytosis, hyper segmentation of neutrophils and fully haemoglobinised red blood cells. In Haemolytic anaemia there would be poly chromatic cells, stippled cells and target cells. Other special laboratory investigations total iron binding capacity (TIBC), serum ferritin (SF), serum folic acid, bone marrow studies are not available everywhere and expensive. Therefore they are not for routine use to diagnose pregnancy anaemia.

MANAGEMENT:

- A pregnant woman requires about 2 to 4.8 mg iron every day. To have it from the dietary sources she must consume 20-48 mg of dietary iron. This is practically impossible in India because of average vegetarian diet does not contain more than 10-15 mg of iron and the phytate content in it further reduces iron absorption. Moreover majority of Indian women enter pregnancy already with iron depleted condition. The iron store is markedly diminished when there is fall in Hb values. Therefore in India there is a need for routine iron supplementation to all pregnant women.

Prophylaxis - It is advisable to build up iron store before a woman marries and becomes pregnant. This can be achieved by:-

- 1) Routine screening for anaemia for adolescent girls from school days.

- 2) Encouraging iron rich foods.
- 3) Fortification of widely consumed food with iron.
- 4) Providing iron supplementation from school days.
- 5) Annual screening for those with risk factors.

Iron rich foods - Pulses, cereals, jaggery, Beet root, Green leafy vegetables, meat, liver, egg, fish, legumes, dry beans, and iron enriched white breads etc.

Oral Iron therapy - Oral Iron is safe, inexpensive & effective way to administer iron. Oral route should be the route of choice in routine cases. Parenteral route of iron therapy should only be considered when oral route is not possible due to any reason. If all pregnant women receive routine iron and folic acid, it is possible to prevent nutritional anaemia in pregnant women. National nutritional anaemia prophylaxis programme advises 60 milligrams elemental iron and 500 micrograms of folic acid daily for 100 days to all pregnant women. However it is suggested that 120 milligram of elemental iron and 1 milligram folic acid are the optimum daily doses needed to prevent pregnancy anaemia. The higher dose in Indian women is required as they start pregnancy with low or absent iron stores due to poor nutrition and frequent infection like hook worm and malaria.

How to select the iron salt - There are many iron preparations available in the market and a clinician is often confused as to which iron preparation should be advised to the patient. Ferrous sulphate is least expensive and best absorbed form of iron. It also allows more elemental iron absorbed per gram administered. If for some reasons this is not tolerated, then ferrous gluconate, fumarate are the next choice for iron therapy. However the iron salt should be selected based on compliance of the patient, tolerance, side effects, clinical situation of the patient and availability of a particular salt. Oral iron must be continued for 3-6 months after haemoglobin has come to normal levels. This helps in building iron stores.

Timing of oral iron intake in relation to food - It is true that if iron is taken with food there is some reduction in side effect related to GI Tract. However staple Indian diet consists of cereals and cereals contain phytic acid. Phytate reduce iron absorption. Addition of vitamin C in medicine or in the diet enhances iron absorption. If the predictable rise in haemoglobin does not occur after oral iron therapy, one must find out the possible reasons. Some of the reasons are as follows

1. Incorrect diagnosis.
2. Mal-absorption syndrome
3. Presence of chronic infection
4. Loss of iron from the body
5. Lack of patients compliance
6. Ineffective release of iron from a particular preparation.

Severe anaemia in late pregnancy (after 32 weeks) - These patients should ideally be managed in a hospital setting. They may or may not present with heart failure. However they all need urgent admission and bed rest. They need complete rest with sedation, oxygen. In case, of CCF patient should be given digitalis, diuretics and packed red cells. Packed red cells are preferred choice for severe anaemia in later part of pregnancy. This should be infused along with diuretics. Once the patient is stabilized total dose infusion of iron Dextran may be considered.

Management of endemic infection - Malaria and hook worm infection are major factor causing anaemia in pregnancy due to haemolysis and Chr. Blood loss respectively. Malaria causes low birth weight babies, parasitaemia in neonates, haemolysis of RBCs and becomes a persistent source of infection. Therefore one should not hesitate to treat malaria in pregnancy. The preferred drug is chloroquine. Malaria prophylaxis should also be given to pregnant women in areas where malaria is endemic. Likewise Albendazole or mebendazole is recommended to all pregnant women after the first trimester of pregnancy. To prevent recurrence, patients should be advised to use footwear, improve sanitation, and personal hygiene.

ANM (AUXILIARY NURSE MIDWIFE):

ANM is a govt. paid health worker who provides free maternal and child care services within a SC area. The NRHM seeks to provide minimum two ANMs at each SC to be fully supported by govt. of India.

Primary tasks of ANMs -

- Registrations of all pregnancies.
- Insure minimum four ANC checkups along with IFA tablets and two TT injections to pregnant women.
- Appropriate and prompt referral in case of high risk pregnancy.
- Provide skilled attendance at home deliveries post partum care and contraception advice.
- Maintenance of all relevant records concerning mother child and eligible couples in the area.
- Provide information on different family planning and contraceptive methods and provision of contraceptives.
- Counseling and correct information on safe abortion services.
- Coordinates services with AWWs, ASHA, VHSC and PRI for observance of health day at AWW centre at least once a month.
- Coordination and supervision of ASHA.
- The untied grant to the SC is kept in a joint account which is operated by the ANM and local sarpanch.
- ANM is answerable to VHSC which oversees her work.

SERVICES GUARANTEES FROM SC TO MOTHER AND CHILD:

Maternal Health:-

ANC (Ante Natal Care)-

- Early registration of all pregnancies.
- Minimum four ANC checkups.
- General examination such as weight, BP, anaemia, abdominal examination, height and breast examination.

- Iron and FA supplementation.
- TT injection, treatment of anaemia, etc.
- Minimum laboratory investigations like haemoglobin, urine albumin, and sugar.
- Identification of high risk pregnancies and appropriate and prompt referral.

Intra Natal Care-

- Promotion of institutional deliveries.
- Skilled attendance of home deliveries as and when called for.
- Appropriate and prompt referral.

Post Natal Care-

- A minimum of two post partum home visits.
- Initiation of early breast feeding within half hour of birth.
- Counseling on diet and rest, hygiene, contraception, essential new born care, infant and young child feeding, STI/RTI and HIV/AIDS.

Child Health:-

- Promotion of exclusive breast feeding for six months.
- Full immunization of all infants and children.
- Correct doses of vitamin A.
- Prevention and control of childhood disease like malnutrition, infection, etc.

RATIONALE:

Anaemia during pregnancy makes both mother and child prone to mortality and morbidity. And hence it leads to increase in the Maternal Mortality Ratio and Infant Mortality Rate. Therefore it is very necessary to know that what we are being done in our health system to overcome anaemia during pregnancy.

OBJECTIVES OF THE STUDY:

- To assess knowledge of ANMs regarding high risk pregnancy and its diagnosis, tracking, monitoring, outcome and follow ups.
- To know the reasons behind discontinuation of HRP patients in SCs after diagnosis.

METHODOLOGY:

It was a cross sectional descriptive study conducted in SCs of Ganganagar district. The target population of the study was ANMs at the SCs. Ten SCs were conveniently selected. And ten ANMs at the selected SCs were interviewed through semi structured questionnaire (one at each SC). And a one to one depth interview was by each ANM. Only those ANMs were taken as sample who had tackled the cases of High Risk

Pregnancy due to Anemia right from the ANC registration till the follow up of 42 days after the delivery.

ANMs were interviewed on the basis of open ended questions but to infer the results questions were converted into close ended and were analyzed on excel sheet. The focus of our study was majorly qualitative.

ANMs were interviewed on these variables:-

- They were assessed on the knowledge of High Risk Pregnancy.
- How do they diagnose the cases?
- How do they monitor and track on the cases?
- Reasons behind discontinuation of HRP patient from SCs.
- Outcome and follow up of HRP.

LIMITATIONS:

- The major constraint of our study was the exposure of ANMs as they didn't get much chance to handle the HRP cases due to lack of trust by the patients in ANMs at Sub Centers (SCs), also cases were referred to higher centers by ANMs themselves because of their incapability to handle those cases.
- Time constraint.
- The answers of ANMs on different variables were on the basis of their recall memory. So they might have missed some of information.

FINDINGS:

- 50% of the ANMs had knowledge of about 5 causes of HRP while 40% had knowledge of about 4 causes and 10% had knowledge of 2 causes of HRP. The causes mentioned by them were anaemia, hypertension, high weight, low weight, small height, HIV/AIDS, swelling in limbs, etc.
- Total cases of HRP due to anaemia looked after by 10 ANMs were 57. Average 6 cases of HRP due to anaemia were looked after by an ANM in last six months while the minimum number was 1 and maximum was 15.
- Out of total cases of HRP due to anaemia visited at SCs in last six months, 6 cases (10%) out of 57 cases left treatment at SCs. And all of them left the treatment in 4th or 5th month of pregnancy and went to private hospital. And they left the treatment because they felt private hospitals are better than govt. hospitals but most of them add up to this reason by saying that they are capable of paying then why shouldn't they go to private hospital. All the babies which were delivered in private hospitals were normal and the deliveries were normal in 80%

of cases while 20% were CS. Information of left cases were known to ANMs by herself and also through ASHA.

- Out of ten cases of HRP due to anaemia which were asked by ANMs 80% were registered in 1st trimester while 20% were registered in 2nd trimester of pregnancy and migration was the reason for those who could not be registered in 1st trimester. ANMs diagnosed anaemia in all of them by performing Hb test. And all of them were counseled and given treatment (Iron & folic acid). They also counseled them about HRP and its signs and delivery plan was made in each case.
- ANMs didn't refer 90% of them while when 10% were referred to higher center they refused to go there and insisted ANMs to treat at SC only.
- To make sure that patient must visit SC after diagnosis for next examinations, all ANMs did counseling and 50% of them also did home visit before next visit while out of these 50%, 10% also asked ASHA to visit patient home to counsel her for next examination even after they have already counseled patient at their home. They did the same on each visit of patients.
- 50% of the patients visited for next examination themselves while 50% came when they were recalled by ANM or ASHA. But for checkups in all due dates ASHA had to recall them either through phone or home visit.
- In most of the cases patients were accompanied by ASHA or family members or both during her checkups.
- ANMs counsel ASHA and other attendants about HRP and importance of patients' regular visits to SC. They counsel about patients' diet (green leafy vegetables), cause and signs of HRP, proper intake of medicine (IFA), dangers of HRP and its complications, when to refer to higher centre, how mother should take care of herself. ANMs ask ASHAs to visit home of HRP patient more frequently.
- 90% of patient showed signs of improvement while 10% were showing no sign of improvement because they were not taking the medicine properly. And for this ANM again counseled the patient about HRP and importance of proper medicine intake.
- 70% of those cases were out of risk before delivery while 30% were still at risk. But ANMs managed to perform delivery of 30% of HRP cases which were still at risk.
- Outcome of those deliveries were – 60% normal, 30% CS and 10% preterm.
- 60% of the mothers were feeling weariness, while 40% were normal after delivery. And none of them was accrued by any complication immediately after delivery (48 hours after delivery).
- 40% of the babies were normal while 60% were LBW.
- In each case both ANM and ASHA visited patients' home for follow ups. None of the patient had any complication up to postpartum period of 42 days.

- 90% of the babies were found normal while only 10% were weak during the follow ups but the general condition of all mothers and children were normal in last follow up.

CONCLUSION:

- The knowledge level of ANMs is good about HRP and its general causes specially anaemia.
- The method used by ANMs is Hb test to diagnose anaemia in any case of pregnancy which they already are suppose to do at SC.
- They involve herself in tracking the patient and also through ASHA. Even they track those HRP cases which left treatment at SC after diagnosis.
- Monitoring is done through herself and with the help of ASHA by home visits. ASHA do it more often than ANM. ANM counsels ASHA and ASHA reports to ANM about HRP.
- Outcome is satisfactory as 70% of the cases were out of risk before delivery, 60% of the cases had normal delivery and more importantly they managed to avoid any complications.
- ANM visits home for follow ups and they monitor and track with the help of ASHA who visits home more frequently up to post partum period.

RECOMMENDATIONS:

- More knowledge should be given to ANMs about HRP at Sub Centre so that they can know about HRP in better way.
- It is imperative to change the mentality of people that they don't need to go to private hospital for the treatment as they think that they get better treatment at private than govt. hospital. Proper counseling should be given to them regarding this.
- Those who are not coming for their ANC registration in 1st trimester, must be counseled that this is for their health otherwise it will affect both of them (mother and child). So the ANM must give them counseling for this.
- Not only those who are anaemic during pregnancy but also their family members must know about anaemic pregnancy, its symptoms, problems that it causes during pregnancy, its medicine and proper diet, so that they can take proper care. And for this ANMs must do their proper counseling.
- In one of the case we found that an anaemic pregnant lady was in very critical condition during her labor pain at Sub Centre and the ANM tried to convince her to go to district hospital but the lady refused and wanted to deliver the baby at Sub Centre. This could have been risky to both mother and baby. ANMs must be given very clear guidelines and they should be counseled that they should not put any of mother or baby into risk even if the mother or her attendants insist to do so. ANMs must be capable of convincing the mother and their attendants about the risks.

REFERENCES:

- Medical-dictionary.thefreedictionary.com/high-risk+pregnancy.
- Practice of Medicine by K George Mathew.
- Practice of Medicine by Davidson.
- Guidelines for ANM, ASHA and SC as per NRHM.
- Preventive and Social Medicine by Park.

Annexure A.**TIME SCHEDULE**

S. no.	Name of the Department	Date (s) of Visit	% of time Spent	People met (with designation)
1.	Maternal Death Audit	16 th -17 th April	80%	Dr. Indra Gupta, Nodal officer RCH camp, RTI/STI
2.	Child Health	18 th -19 th April	50%	Mr. Manoj Kumar Swarankar, state coordinator SNCU
3.	Janani Suraksha Yojana	20 th April	70%	Dr. Naresh , Nodal officer JSY
4.	Accredited Social Health Activist (ASHA)	23 rd April	90%	Ms. Sushrita Roy, Consultant ASHA
5.	Village Health Sanitation Committee (VHSC)	24 th -25 th April	30%	Mrs. Vaidhehi Agnihotri, Coordinator VHSC
6.	Maternal Health	26 th -27 th April	20%	Dr. Giriraj Sharma, Consultant Maternal Health
7.	Immunization	30 th April	80%	Dr. L.L. Dautonia, Deputy Director
8.	Demographic Unit	1 st may	60%	J.P.Jat, Demographer
9.	Mukhya Mantri Jivan Raksha Kosh (MMJRK)	2 nd -3 rd may	80%	D.P. Kanoongo, Consultant MMJRK
10.	Urban Reproductive Child Health (URCH)	7 th may	50%	Mrs. Shikha Sharma, Consultant Urban RCH

Annexure B.

QUESTIONNAIRE

Subcentre:

Block:

District:

1. Tell me about high risk pregnancy.
2. No. of cases of high risk pregnancy in last six month :
 - 2.1. How many of them left the treatment from the govt. hospital?
 - 2.2. When did they stop taking treatment from govt. hospital? (after which month of conception)
 - 2.3. Why did they leave the govt. hospital?
 - 2.4. Where did they go for the treatment?
 - 2.5. What were the outcomes of those pregnancies?
 - 2.6. From whom did you get above three answers? (from ASHA or others)
3. Case of high risk pregnancy (due to anaemia) (last fully followed up case) by ANM at SC.
 - 3.1. When was she registered for ANC?
 - 3.2. What was the reason if she could not be registered in the first trimester?
 - 3.3. How did you diagnose it?
 - 3.4. What you did after diagnosis?(counseling, treatment, etc.)
 - 3.5. Did you counsel her about the high risk of pregnancy and its signs?
 - 3.6. Did you make delivery plan for her?
 - 3.7. Where did you refer for the treatment?
4. What did you do to make sure her visit for next examinations?
 - 4.1. How many times did you do it? (Only once or in each visits)
 - 4.2. How frequently did she visit by herself?
 - 4.3. Did she visit for checkups on all due dates?
 - 4.4. If not what did u do to call her for checkups?
 - 4.5. What was the reason that she could not come in the due dates?
 - 4.6. Did the pregnant lady was accompanied by any health worker during visit?(ASHA and/or other attendants).
 - 4.7. What did you counsel to ASHA or other attendants about that high risk pregnancy and her regular visits?
 - 4.8. Did she show the sign of improvement in the next checkups or not?
 - 4.8.1. If not then what was the reason for the above question?
 - 4.8.2. And what did you do to for the cause?

5. Was she out of risk before delivery or not?

5.1. If no then what was done to overcome the problem during delivery?

5.2. How was the delivery? (pre term, post term, normal, caesarean).

5.3. What was the condition of the mother after delivery in the institution?

5.4. Did she get any new problem after delivery? (within 48 hours of delivery)

5.5. What was done to tackle the problem which accrued after delivery?

5.6. How was the baby (still birth, normal, diseased, low birth weight, any other)?

6. What did you do for the follow-ups?

6.1. How many times did you call her for follow-ups?

6.2. Did she has any complications?

6.3. What was done to tackle that problem?

6.4. How was the baby during follow-ups?

6.5. General health status of both mother and baby at the time of the last follow-ups?

6.5.1. Mother

6.5.2. Baby