



National Guidelines for Deworming in Pregnancy



**Maternal Health Division
Ministry of Health and Family Welfare
Government of India**

December 2014

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सत्यमेव जयते



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लव वर्मा
सचिव
LOV VERMA
Secretary



भारत सरकार
स्वास्थ्य एवं परिवार कल्याण विभाग
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
Government of India
Department of Health & Family Welfare
Ministry of Health & Family Welfare



PREFACE

As the countdown towards achieving the MDGs ends, it is the need of the hour to consolidate gains and accelerate progress. There have been impressive gains in improving maternal and child survival as reflected in decreasing maternal and infant mortality ratio in India in the last two decades. Important milestones in the journey include the successful implementation of RCH I & II (1996 & 2004), launch of the National Rural Health Mission in 2005, Call to Action, National Health Mission in 2013 and the penultimate Reproductive, Newborn, Child and Adolescent health (RMNCH+A) Strategy which focuses on the continuum of care and prioritises high impact interventions.

Maternal health occupies a pivotal position in the continuum of care and has the potential to influence an entire generation. Anemia during pregnancy is a public health problem with long term implications for both mother and child. We all know that intestinal worm infestation is one of the key factors associated with incidence of anaemia.

Deworming is a proven and cost effective strategy, which has already been adopted for children and adolescents. The evidence on efficacy and safety of deworming medications has been growing steadily. Introducing deworming in the ante natal care package is a step towards taking a more holistic approach to address the problem of maternal anaemia and also to assure improved pregnancy outcomes in terms of birth weight and mortality. This intervention has the potential to improve maternal well-being, birth weights and infant mortality.

I sincerely hope that the guidelines for deworming pregnant women will enable the service providers and the managers to implement this intervention with great vigour.



(Lov Verma)



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



सत्यमेव जयते

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



FOREWORD

In spite of consistent efforts, the prevalence of anaemia in the country remains high across all age groups. The problem is all the more acute among women of reproductive age group and as per NFHS-III (2005-06). It is estimated that around 58% pregnant women in the country are anaemic.

The aetiology of anaemia is multifactorial in nature and the Government is taking multi-pronged action to address this issue. However, Iron and Folic Acid supplementation during Ante Natal Care (ANC) has not resulted in satisfactory decline in incidence and prevalence of anaemia in pregnant women. Available scientific evidence establishes the fact that worm infestation during pregnancy is a major health issue and in some populations up to 41% of iron deficiency anaemia in pregnant women is attributed to hookworm infestation. The medical and surgical manifestations of worm infestation are well known and hence the addition of an anthelmintic regimen during ANC is a welcome step in further impacting the decline of anaemia prevalence in the country.

The regimen suggested in the National guidelines is very simple and easy to implement and hinges on Directly Observed Treatment (DOT) to make it more effective.

I would like to congratulate the Maternal Health Division in framing these guidelines with the help of institutional experts and Development Partners. I urge all the State Mission Directors and Programme Officers to proactively engage in implementing this strategy in their states.

C.K. Mishra



Dr. RAKESH KUMAR, IAS

JOINT SECRETARY

Telefax : 23061723

E-mail : rk1992uk@gmail.com

E-mail : rkumar92@hotmail.com



सत्यमेव जयते

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
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FOREWORD

Health is a measurable social indicator. It is well acknowledged that the impact of health interventions have a direct bearing on the overall productivity and development of the society. The last decade in India has witnessed astounding achievements across the health sector. National Health Mission (NHM) is consolidating this success achieved till date by focusing energies in strengthening neglected areas of maternal health in order to fast-track the country's progress towards achieving the Millennium Development Goals (MDGs) and the targets outlined in the 12th five year plan.

Anaemia and particularly maternal anaemia continues to be a major public health challenge for the country and Soil Transmitted Helminthes (STH) is a major contributory factor. Scientific literature states that parasitic infections affect tens of millions of pregnant women worldwide, and directly or indirectly lead to a spectrum of adverse maternal and fetal/placental effects.

In view of this important evidence, Maternal Health Division of MoHFW convened a series of meetings with different experts and after detailed deliberation drafted the present guidelines to incorporate anti helminthic treatment in the antenatal care (ANC) package being provided to the beneficiaries across the country. These guidelines have been made as simple as possible to facilitate easy implementation.

I would sincerely request all State Governments to include this strategy as an important component of their overall RMNCH+A service delivery package and undertake all measures to begin the implementation of this very important initiative at the earliest.


(Dr. Rakesh Kumar)



Dr. H. BHUSHAN

Deputy Commissioner (MH)

Telefax : 23062930

E-mail : drhbhushan@gmail.com



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भारत सरकार

स्वास्थ्य एवं परिवार कल्याण मंत्रालय
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PROGRAMME OFFICER'S MESSAGE

Anaemia in pregnancy is a global problem. Its prevalence in India is a matter of great concern, particularly because it is not declining at a satisfactory pace. So expert group deliberations recommended to increase IFA supplementation from 3 months to 6 months both in ANC and PNC and also add Routine deworming in the 2nd trimester of pregnancy.

Based on these recommendations and also after a rigorous review of evidence both global and national, a policy decision has been taken for inclusion of deworming to the ante-natal care package.

I would like to express that these guidelines would not have been possible without the constant encouragement from Mr. C.K Mishra, AS & MD & Ms Anuradha Gupta, Ex AS & MD. Dr. Rakesh Kumar, Joint Secretary (RMNCH+A) headed the expert group meeting and gave valuable inputs in framing this guideline.

I would like to acknowledge the contribution of all members of the Expert Group in developing the content of these technical and operational guidelines. I would also like to acknowledge my colleagues in MH Division especially Dr. Dinesh Baswal, DC (MH) and development partner's for their valuable efforts and inputs in developing this document.

It is hoped that these guidelines will be used optimally by Programme Managers to update knowledge and skills of managers and service providers to enable them to implement this intervention successfully and at scale and thereby help in accelerating the decline of anaemia in pregnancy.

Himanshu Bhushan
12.12.14

(Dr Himanshu Bhushan)

LIST OF CONTRIBUTORS

1	Shri C. K. Mishra	AS & MD (NHM), MoHFW
2	Dr Rakesh Kumar	JS (RMNCH+A), MoHFW
3	Dr Himanshu Bhushan	DC (I/c MH), MoHFW
4	Dr Dinesh Baswal	DC (MH), MoHFW
5	Dr Manisha Malhotra	DC (MH), MoHFW
6	Dr V. Seshiah	Diabetes Care Centre, Chennai
7	Dr Rajesh Khadgawat	Add. Prof., Dept. of Endocrinology & Metabolism, AIIMS, New Delhi
8	Dr Hema Divakar	FOGSI
9	Dr Prema Ramchandran	Nutritional Expert, Hyderabad
10	Dr Abha Singh	HOD OBGY, LHMC, New Delhi
11	Dr Himali H. Sinha	Dept. of OBGY, AIIMS, Patna
12	Dr Aboli Gore	MP- TAST, Bhopal
13	Dr Ratna Kumar	Ex HOD, Institute of OBGYN, Chennai, Tamil Nadu
14	Dr B. Shailaja	Epidemiologist, Andhra Pradesh
15	Dr Genevieve Begkoyian	UNICEF
16	Dr Malalay Ahmadzai	UNICEF
17	Dr Sudha Balakrishnan	UNICEF
18	Ms Vani Sethi	UNICEF
19	Dr Somesh Kumar	Jhpiego
20	Dr Vikas Yadav	Jhpiego
21	Dr Vidushi Kulshreshtha	AIIMS, New Delhi
22	Dr Arunabh Ray	BTAST, Patna
23	Mr K. S. Prasanth	Senior Consultant, NHSRC
24	Dr Manju Chuggani	Principal, Rufaida College Of Nursing, New Delhi
25	Dr Ritu Agrawal	LSTM, New Delhi
26	Dr Sudhir Maknikar	National RMNCH+A Expert, JSI
27	Dr Pushkar Kumar	Lead Consultant, MH, MoHFW

28	Dr Rajeev Agrawal	Senior Mgt. Consultant, MH, MoHFW
29	Dr Ravinder Kaur	Senior Consultant, MH, MoHFW
30	Dr Gulfam Ahmed Hashmi	Regional Coordinator, NRU, MoHFW
31	Dr Sonali Rawal	NHM Consultant, MoHFW
32	Mr Shridhar B. Pandit	PO, NRHM, Maharashtra
33	Dr Neeraj Agarwal	Jhpiego
J&K Team		
34	Dr Yashpal Sharma	MD, NHM, Govt. of J&K
35	Dr Harjeet Rai	NHM, Govt. of J&K
36	Dr Mushtaq Ahmad Dar	NHM, Govt. of J&K
UP Team		
37	Mr Sanjay Prasad	Secretary, Health, Govt of UP
38	Dr Neera Jain	GM, MH, NHM, Govt of UP
39	Dr Vikas Singhal	NHM, Govt. of UP
40	Dr Sapna Das	NHM, Govt. of UP
41	Dr Pravesh Kumari	NHM, Govt. of UP
42	Dr Ranjana Khare	Senior Gynaecologist, Jhalkaribai Hospital, Lucknow
KGMU Team, Lucknow		
43	Dr Vinita Das	Prof. & Head Dept. of OBGY, KGMU, Lucknow
44	Dr Anjoo Agarwal	Prof. of OBGY, KGMU, Lucknow
45	Dr Amita Pandey	Assoc. Prof, Dept. of OBGY, KGMU, Lucknow
46	Dr Smriti Agarwal	Asst. Prof. of OBGY, KGMU, Lucknow
47	Dr Madhukar Mittal	Asst. Prof. of Dept. of Medicine, KGMU, Lucknow

LIST OF ABBREVIATIONS

ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
AV	Audio Visual
BCC	Behaviour Change Communication
CHC	Community Health Centre
DEC	Diethylcarbamazepine
DOT	Direct Observation Treatment
FDA	Federal Drug Association
GoI	Government of India
IEC	Information Education Communication
IFA	Iron Folic Acid
IUGR	Intra Uterine Growth Restriction
LBW	Low Birth Weight
MC	Medical College
MO	Medical Officer
PHC	Primary Health Centre
PIP	Programme Implementation Plan
PW	Pregnant Women
RCH	Reproductive and Child Healthcare
SBA	Skilled Birth Attendance
STH	Soil Transmitted Helminth
VHND	Village Health & Nutrition Day
VHSC	Village Health and Sanitation Committee
WASH	Water Sanitation & Hygiene
WHO	World Health Organization

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1. Introduction



Soil Transmitted Helminthes (STH) infections are common worldwide, contributing to a high burden of malnutrition and morbidity in resource poor settings. The most common STH parasites are *Ascaris lumbricoides* (roundworm), *Trichuris Trichuria* (whipworm), *Ancylostoma duodenale* and *Necator americanus* (hookworm). Hookworm infestation is one of the commonest STH infestations contributing to the burden of anaemia in the world.



STHs infect more than one billion people worldwide, causing the annual loss of 39 disability adjusted life years. The prevalence of intestinal worm infestation in India varies from 5% to 76%, which is similar to that in other developing countries. In areas where hookworm infestation is endemic, up to 90% of pregnant women (PW) are anaemic.

1.1 Consequences of STH infestations on health

Chronic STH infestations are a public health problem as they can cause anaemia, malnutrition, growth faltering, and impaired cognitive development. These infestations lead to nutritional deficiencies by causing either protein and nutrient loss or malabsorption. STH infestations can also cause anorexia, reduced fat absorption, reduced absorption of Vitamin A and protein, lactose intolerance, and these consequences can lead to malnutrition. Hookworm infestations can cause micro-bleeding at the sites where the parasitic nematodes attach themselves to the intestinal wall. Hence, moderate to heavy intensity hookworm infestations are frequently associated with anaemia. Co-infestation with malaria or other STHs can augment this relationship particularly in populations with inadequate dietary intake. These conditions are highly relevant in the Indian context.

In some populations, up to 41% of iron deficiency anaemia in pregnant women is attributed to hookworm infestation. Anaemia in pregnancy is a major public health problem affecting >56 million PW worldwide. In India, more than 50% pregnant women are affected by anaemia. It is an important cause of maternal morbidity and mortality, pre-term birth, Intra Uterine Growth Restriction (IUGR), Low Birth Weight (LBW) and poor iron status in the infant.

2. Evidence on deworming during pregnancy

2.1 International evidence

Various international studies have shown inconclusive results on the benefits of anthelmintic treatment for mothers and newborns. However, findings from a few observational studies from within the Southeast Asian region have shown a potential benefit of deworming on maternal anaemia, birth weight, and reducing infant mortality. South Asian countries like Nepal and Sri Lanka have already included deworming in their routine Antenatal Care (ANC) programmes.

WHO recommends periodic treatment with anthelmintic (deworming) medicines, without previous individual diagnosis to all at-risk people living in endemic areas. It defines at-risk people as pre-school-aged children, school-aged children, and women of childbearing age (including pregnant women in their second and third trimesters and lactating women).

2.2 National evidence

There are a limited number of studies from India examining the benefits of antihelmintic use during pregnancy. In a community-based study conducted in rural India in the year 2000, pregnant women receiving Mebendazole, iron supplements, Information Education and Communication (IEC) had lower rates of anaemia as compared with the control community. In a randomised

study in West Bengal in 2006, pregnant women receiving a single dose of Albendazole during 28-30 weeks of pregnancy, along with iron supplementation, had significant improvement in haemoglobin concentration and the birth weight of the newborns as compared to pregnant women receiving only iron supplementation.

Prevalence data for STH infestation is not uniformly available for the country. However, clinical experience suggests high worm load in the community. A direct relationship exists between worm load and maternal anaemia. Moreover, appropriate administration of antihelminthics results in curing the infestation or lessening the intensity of worm burden, which benefits both pregnant woman and communities by potentially improving the overall health and wellbeing of these women and by reducing the number of eggs shed in the environment.

Currently, deworming is not a part of routine ANC in India. States such as Tamil Nadu have deworming as part of ANC package for a long time. In the private sector as well, deworming is frequently included in the ANC packages. However, there are no uniform national guidelines on the use of antihelminthics during pregnancy in the country.

2.3 Anthelmintic drugs

Common available antihelminthic drugs used to treat STH are Albendazole, Mebendazole, Pyrantel Palmoate, Levamisole, Diethylcarbamazepine (DEC), Praziquental, and Ivermectin.

Efficacy of various drugs

Mebendazole has produced nearly 100% cure rate/reduction in egg count in roundworm, hook worm, *Enterobius* and *Trichuris* infestations and 75% cure in tape worm, but is much less active on *Strongyloides*. Albendazole is a congener of Mebendazole which retains the broad-spectrum activity and excellent

tolerability of its predecessor, and has the advantage of a single dose administration in many cases. One dose treatment has produced cure rates in ascariasis, hookworm (both species) and enterobiasis which are comparable to a three-day treatment with Mebendazole.

Precautions/side effects

Mebendazole is generally well tolerated. Diarrhoea, nausea and abdominal pain are commonly reported side effects after its use in heavy infestation. Allergic reactions, loss of hair and granulocytopenia have been reported with high doses. Albendazole is well tolerated, and only gastrointestinal side effects have been noted. A few patients have felt dizziness. Pyrantel is generally free of side effects, although occasional gastrointestinal symptoms, headache and dizziness have been reported. It is tasteless, nonirritant and abnormal migration of worms is not provoked. One or two doses of Levamisole used in Helminthiasis are well tolerated. The incidence of side effects - nausea, abdominal pain, giddiness, fatigue, drowsiness or insomnia is low.

WHO guidelines on Preventive Chemotherapy in Human Helminthiasis suggests that Mebendazole or albendazole use during pregnancy did not have any effect on occurrence of congenital abnormalities in babies.

2.4 Other measures

International evidence suggests that interventions that include Water, Sanitation and Hygiene (WASH) have been reported to be highly effective in reducing the environmental exposure to,

and transmission of, eggs and larvae for STH. Following the implementation of improved water and/or sanitation facilities, as much as 29% decrease in the prevalence of *Ascaris lumbricoides* and 77% reduction in prevalence of Schistosomiasis have been observed. In conjunction with the Anthelmintic drug treatment, it is imperative that sanitation measures are encouraged in the community through proper education and counselling (in all areas, irrespective of the degree of prevalence of STH infestation). Measures such as WASH are critical for sustainable helminth control.

Considering these experiences and evidence, the expert group recommended that WASH measures should be encouraged for implementation.

2.5 Need for national guidelines

Anaemia is a significant health problem in the country, especially in pregnant women. Although oral Iron and Folic Acid (IFA) supplementation is a part of the Anaemia Control Programme for pregnant women since the last three decades, the desired reduction in anaemia has not been achieved so far by this single intervention. There is, thus, a need to address the contributing factors leading to anaemia especially among pregnant women. Considering the demonstrated benefits, variance in the use of de-worming, and the fact that sanitation and hygiene is suboptimal in most parts of the country, there was a felt need for framing clear guidelines for the use of anthelmintic drugs during pregnancy.

Therefore, an expert group was constituted to deliberate on deworming in pregnancy in detail and formulate guideline for India. The present guideline has been prepared based on the recommendations of experts and available national and international evidences.

3. Technical guidelines for deworming during pregnancy



Aim:
To reduce maternal morbidity and mortality



Objective:
To reduce the incidence of anaemia in pregnancy by deworming during pregnancy
To provide the protocol for deworming during pregnancy and operational details of this programme

3.1 Target population

All pregnant women in STH endemic areas (prevalence more than 20%).

Considering the potential benefits and high infestation load from the public health perspective, deworming is recommended routinely during pregnancy even in the absence of prevalent data. Simultaneously, the states, in partnership with academic institutions and other partners, should also undertake studies to estimate the prevalence and the extent to which this infestation affects pregnant women.

3.2 Protocol for deworming during pregnancy

1

Albendazole is the recommended drug of choice for deworming of PW

2

Deworming should be done after the 1st trimester of pregnancy (preferably during the 2nd trimester)

3

A single dose of 400 mg of albendazole is recommended

Considering the evidence around safety, efficacy, and tolerance, it is recommended that Bezimidazoles are the most suitable for deworming during pregnancy. However, Albendazole being a single dose drug is more cost effective and has better potential for compliance, and as such, is being recommended as the drug of choice under this programme.

3.3 Specifications of Albendazole

A single dose of 400 mg IP of Albendazole is recommended.

3.4 Side effects and contraindications

- There is no specific contraindication/side effect except nausea, vomiting, rash, and abdominal pain, urticaria in some cases
- It should not be used in the 1st trimester of pregnancy.

3.5 Counselling tips

- All states should ensure adequate measures such as focused behaviour change communication (BCC) for improving sanitation and hygiene among pregnant women (PW)
- Counselling focused on improving sanitation and hygiene among pregnant women should be emphasised.
- WASH interventions, including social measures to curb unhealthy practices like open defecation etc., need to be addressed.



Other supportive measures:

- The disposal of all human faeces (including that of young children) in water sealed latrines in order to minimise environmental contamination
- Use of footwear to prevent hookworm infestations
- Washing of fruits and vegetables before consumption
- Drinking safe potable water
- Personal hygiene and hand washing before meals and after using the toilet
- Environmental sanitation: Water stagnation and garbage free surroundings should be ensured in villages/towns. State specific action plans for liquid and solid waste management have to be implemented
- Accredited Social Health Activists (ASHAs) should follow all the processes of BCC to ensure the change in the behaviour of pregnant women.
- Village Health and Sanitation Committee (VHSC) forums should be used for disseminating information and ensuring the physical infrastructure required for establishing WASH measures.

3.6 Supply and storage of Albendazole tablets

Albendazole is to be taken only once during the 2nd trimester of pregnancy. The second dose is needed only in case the helminthic load is > 40%.

The total number of Albendazole doses required for a district should be calculated accordingly at the district level, after taking into account the total number of pregnant women registered for ANC and a 10% add on.

Albendazole tablets can be stored at room temperature (15-30⁰C). They should be stored away from heat, moisture, and light.

The tablets should be made available at all levels of facilities that provide ANC services. It should be the responsibility of the healthcare worker providing ANC services to ensure that the tablet is distributed and consumed in her presence.

4. Operational aspects of the programme

4.1 Roll out plan

In all states, the programme will be implemented at all the levels that pregnant women come into contact with the health system. These include Village Health and Nutrition Days (VHNDs), Sub-Centres, Primary Health Centres (PHCs) in urban and rural areas, Community Health Centres (CHCs), Sub-district Hospitals, District Hospitals (DHs) and Medical Colleges (MCs).

4.2 Strategy for Implementation

Ideally, drug administration for deworming should be done under Direct Observation Treatment (DOT). For this purpose, it is recommended that the drug should be given to the pregnant woman during an ANC visit after the 1st trimester (preferably in 2nd trimester), and the pregnant woman should be encouraged to consume the drug in the presence of the health worker at the time of the ANC visit.

4.3 Role of health personnel at different levels of health activity

Anthelmintic drugs can be administered by all cadres of healthcare workers providing ANC to pregnant women, including Auxiliary Nurse Midwives (ANMs), Staff Nurses (SNs), Medical Officers (MOs) and Obstetricians. However, all such health workers should be sensitised on the timing, dose, and common side effects of the drugs. They should also be sensitised on procedures to follow in case of any adverse outcomes.

Albendazole does not cause any serious side effects. The pregnant woman should be informed that she may experience

minor side effects such as nausea, vomiting, rash, and abdominal pain, urticaria, etc., and in the event that she does experience any such side effects, she should not be unduly concerned. Occurrence of any major adverse event, however, should be immediately reported.

4.3 Capacity building of health personnel for deworming in pregnancy

Activity	General orientation about the programme including awareness & IEC	Counselling & motivation	Knowledge of antihelminthic drugs, dosage, timing of administration in pregnancy and side effects	Maintaining records & follow up
Health personnel				
ASHA	√	√		√
ANM/SN/ Lady Health Visitor	√	√	√	√
MO/Ob-Gyn	√	√	√	√
State/District programme manager & Facility in-charge	√			√

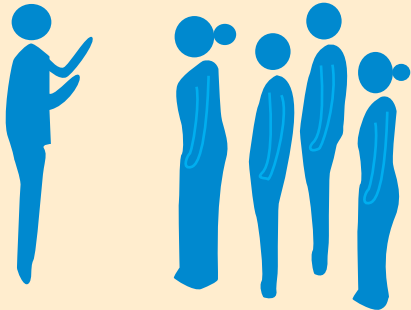
A one-day orientation programme on the guidelines should be organised for the district and block level programme officers.

During this one – day orientation, planning for necessary logistics and training of healthcare workers should also be done.

Ideally, the training for healthcare workers for deworming of pregnant woman should be integrated with other training programmes, such as the training for calcium supplementation during pregnancy.

Training for this component may be included in modules 6 and 7 for the training of ASHAs as well as training programmes such as Skilled Birth Attendants (SBA).

4.5 Training/orientation

Topics for orientation	Health workers	Duration
<ul style="list-style-type: none">• General orientation about the programme including awareness and IEC• Counselling and motivation• Knowledge of Anthelmintic drugs, dosage, timing of administration in pregnancy• Benefits of deworming• Information on minor adverse effects of Albendazole and assurance• WASH and other supportive measures• Maintaining records and follow up	<ul style="list-style-type: none">• Programme manager and facility in charge• ASHA• ANM/SN/LHV• MO/Ob-Gyn 	<ul style="list-style-type: none">• One day orientation• (Either separate or can be included with any other training)

Batch size

- Districts will be mapped for all delivery points.
- All cadres of staff working at different level of facilities but involved in providing ANC needs to be oriented.
- Priority should be given to health personnel of all delivery points for training and orientation on rotation basis.
- Stand-alone training for deworming might not be needed the orientation programme can be held during the existing review meetings at states/districts/blocks/PHCs or may be combined with any other training programme.
- If a separate training is to be organised, one batch can have 50-100 trainees from all cadres.
- One batch of trainees will consist of
 - Programme manager
 - ANM/SN/LHV
 - MO/Ob-Gyn
- District Training-in-charge will accordingly prepare the training plan and calendar.
- ASHAs to be trained separately during any ongoing training programme.

Training site

Prerequisite

- Seminar/Conference Room with a capacity of around 100 participants
- Audio Visual (AV) aids and other training aids

Any DH/CHC which has the above prerequisites/is able to arrange the above prerequisites can be chosen as a training site

Trainer

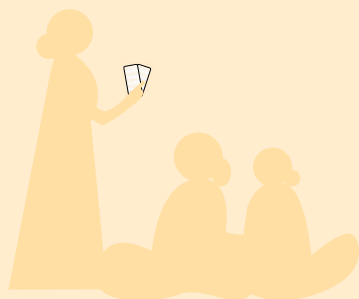
- Ob-Gyn and Counsellor to be included as Trainers
- Half day Training of Trainers (TOT) should be organised for 20-25 Trainers at DH level

Training material

- Gol guidelines on deworming during pregnancy
- Any other teaching or training material synchronised with Gol guidelines

Training methodology

- Job aids/Posters/Handouts
- Presentations



5. Key Points

- Deworming should be done for pregnant woman once after the 1st trimester (preferably during the 2nd trimester) in areas where the prevalence of STH infestations is more than 20%.
- In the absence of prevalence data, it is recommended that deworming should be done once, for all pregnant woman after the 1st trimester, preferably during the 2nd trimester. However, the states should undertake measures for estimating the prevalence of STH infestations in various areas.
- Albendazole (400 mg) should be given to pregnant woman for deworming.
- The drug should preferably be given as DOT.
- WASH measures should be encouraged for improving sanitation & hygiene.

Records & registers

An appropriate entry should be made in the ANC card of the pregnant woman after the administration of Antihelminthic.

A column should be added in the ANC register to record administration of Antihelminthic to pregnant woman. This component should be made a part of the regular monthly report of the ANC sent by various levels. Reporting on deworming during pregnancy should be made a part of reporting under the Reproductive and Child Healthcare (RCH) portal.

State and district programme managers to ensure:

- Constant supply of Albendazole and its distribution
- Reflecting adequate budget in Programme Implementation Plan (PIP) and ensuring timely release of funds
- Monitoring the outcome and progress

6. Monitoring and Evaluation

- Monitoring the administration of Antihelminthic drugs should be made a part of the existing monitoring visits for ANC by various supervisors. The supervisor's check list should include monitoring on DOT administrations of Antihelminthics.
- ASHAs to monitor compliance through home visit.
- ANM to monitor compliance during ANC and postnatal care (PNC).

7. Outcome measures to be assessed

- Number/Percentage of ANC who have been administered Albendazole in the reporting month
- Number/Percentage of ANC having Hb 7gm% in the reporting month

8. Budget

- Infrastructure: Any additional infrastructure not required
- Human resource: No separate human resource required
- Cost of Albendazole can be reflected under Janani Shishu Suraksha Karyakram (JSSK)

Budget estimates and provision for Albendazole tablets needs to be done by the state/district programme officers:

- It is estimated that a single dose of 400 mg of Albendazole shall be provided to every pregnant woman.
- The Albendazole tablet shall be given after the 1st trimester of pregnancy (preferably during the 2nd trimester)

Training

Stand-alone training for deworming might not be needed the orientation programme can be held during the existing review meetings at states/districts/blocks/PHCs or may be combined with any other training programme. However, a one day orientation can be organised as per need.

9. Annexure 1

Tips for Health Education



10. Bibliography

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Notes

**Maternal Health Division
Ministry of Health & Family Welfare
Government of India
Nirman Bhawan
New Delhi-110011
www.mohfw.gov.in & www.nhm.gov.in**