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MOTHERCARE II CLOSE OUT

FINAL REPORT FORMAT

PROGRAMME TO PREVENT AND CONTROL ANEMIA AMONG PREGNANT WOMEN

US Agency for International Development
Office of Health

MotherCare
John Snow, Inc

MOTHERCARE II CLOSE OUT FINAL REPORT FORMAT

PROGRAMME TO PREVENT AND CONTROL

ANEMIA AMONG PREGNANT WOMEN

LOCATION : RUHSA DEPARTMENT
CHRISTIAN MEDICAL COLLEGE & HOSPITAL
RUHSA CAMPUS P.O
K.V.KUPPAM
VELLORE DISTRICT 632209
TAMIL NADU, INDIA

BUDGET : $92,214

SOURCE OF FUNDING MOTHERCARE, JOHN SNOW INC - USAID

KEY PERSONNEL :
DR RAJARATNAM ABEL
DR SAMPATH KUMAR
MRS JOLLY RAJARATNAM
MR STALIN GNANASIGAMANI

CONTENT

ANAEMIA PROGRAMME TEAM

INVESTIGATOR	DR RAJARATNAM ABEL
CO-INVESTIGATOR	DR SAMPATHKUMAR
DATA MANAGEMENT	MRS TOLLY RAJARATNAM
HEALTH EDUCATION	MR STALIN GNANASIGAMANI
ASST. PROJECT OFFICER	MR ASOKAN
NUTRITIONIST	MRS JAYALAKSHMI
COMMUNITY VOLUNTEERS INCHARGE	MR SOLOMON VICTOR
LAB TECHNICIANS :	MR PAUL JONATHAN
	MRS JEMIMA RENCE
SUPERVISOR	MR JEEVAN KUMAR
STATISTICAL ASST	MR RAMAKRISHNAN
FIELD STAFF	MR VENKATATHIRI
	MR PARANDAMAN

RURAL COMMUNITY OFFICERS

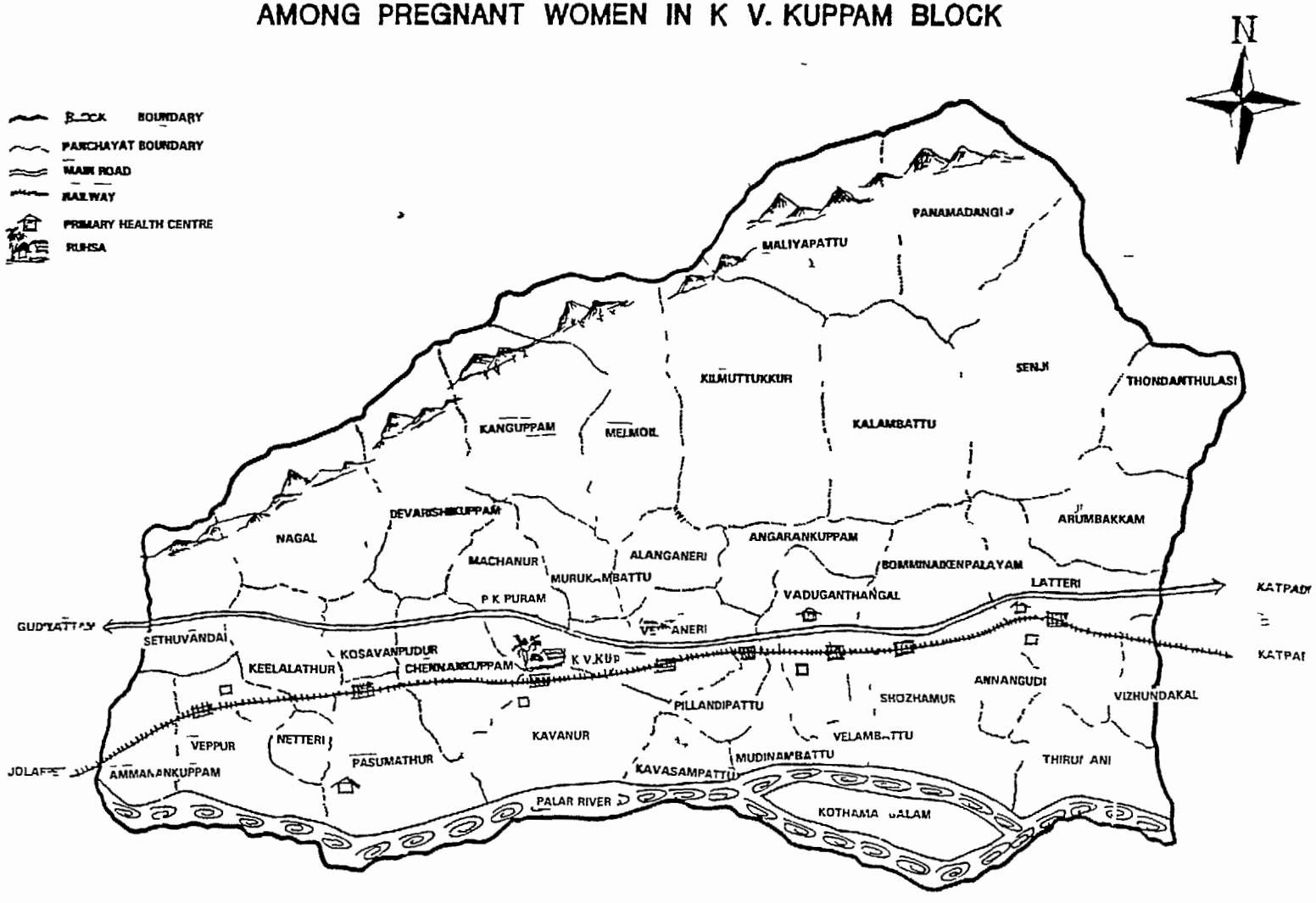
MR KALAIMANI
MR GANESAN
MR SURESH
MR SOLOMON KIRUBAKARAN
MR AMALAN JAYASEELAN
MR JOSEPH GNANASEKARAN
MR JAYARAMAN
MR AMMAYAPPAN

FIELD HEALTH COORDINATOR

MS LILLY JOHN
NURSES
MRS KANGARANI
MRS RUTH EVANGELIN
MRS AMUDHA ANANDAN

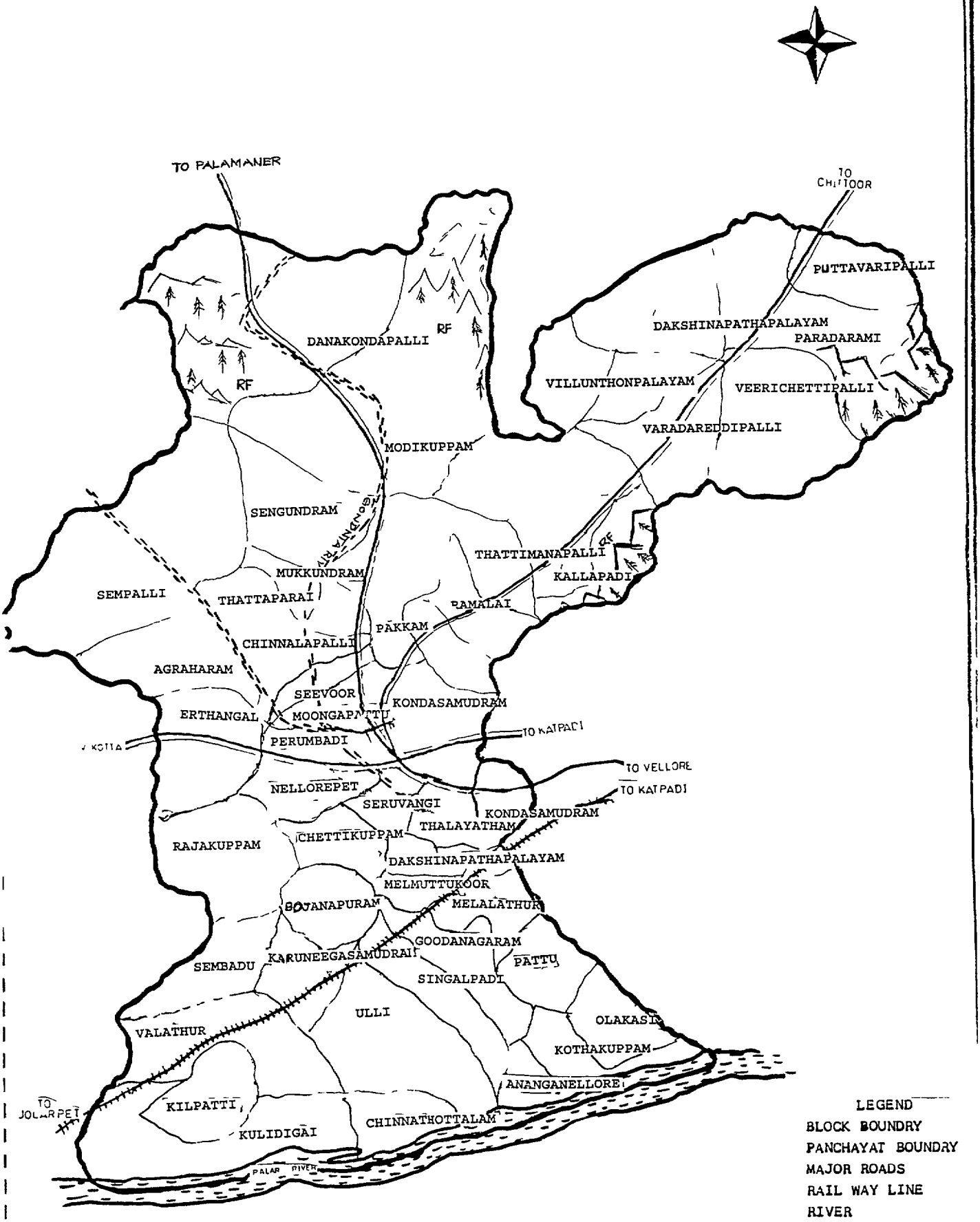
ACCOUNTANT	MR R SANJEEVI
SECRETARIAL	MRS VATHSALA ISAAC
COMPUTER WORD PROCESSING	MRS KUNITHA MARTIN

SELECTED PANCHAYATS FOR THE QUALITATIVE STUDY AMONG PREGNANT WOMEN IN K V. KUPPAM BLOCK



3a

GUDIYATHAM BLOCK



LEGEND

BLOCK BOUNDRY
PANCHAYAT BOUNDRY
MAJOR ROADS
RAIL WAY LINE
RIVER
STUDY AREA

I. EXECUTIVE SUMMARY

a. Project Purpose

The programme to control anemia among pregnant women carried out by RUHSA Department, Christian Medical College and Hospital was part of a larger programme on anemia in pregnancy funded by Mother Care Project of John Snow Incorporated, USA, a USAID supported project There were three other Centres besides RUHSA Department in India working on this project

The major objective of this programme was to reduce anemia in pregnancy by at least 15% over a 30 month period. This was to be achieved by a strong programme of education aimed at behaviour change. This was backed up by facilitation of distribution of iron and folic acid tablets as well as reducing hook worm infestation by routine deworming.

b. Project Strategy

Iron and folic acid tablets were freely distributed as before, with additional warning of possible G I upsets in a few, and with advise to continue taking the tablets Further to enhance adequate consumption women were encouraged to register for antenatal care in the first trimester itself so that IFA could be started at 2nd trimester

Deworming was also carried out among pregnant women For pregnant wome mebendazole 100 mg twice a day 3 days was administered It was administered during the second or third trimester of pregnancy Even with this schedule we had problems with young medical graduates considering it unethical to give mebendazole during pregnancy.

The health care providers of Govt (VHN, SHN, Doctors) and RUHSA Family Care Volunteers(FCVs) Health Aides (HAs), Rural Community Officer (RCOs), Paramedicals, Nurses, and Doctors were given adequate knowledge on anemia in pregnancy

The education programmes were carried out using a number of strategies in K V Kuppam Block These included inter personal communication on a one to one basis in the homes, group education in the homes and in the clinics This was backed by producing educational materials in the form of handbills, flash cards, booklet, video cassette and audio cassette Adolescent girls were given the educational input both in schools and in the community The general community was sensitised using a campaign approach as well as through video and handouts and audio cassettes

Monitoring was done by maintaining a register in each FSU for early identification of pregnant women, registration and distribution of IFA Review meetings were held periodically, to assess the progress by displaying the percentage of pregnant women registered in different trimesters in each FCV area

Field staff supervised the education programme carried out by FCVs and in the mobile clinic to assess the quality of educational input

c. Overview of the major intervention including research

The research design used in this study was a two stage pre - post design with control This was a community based trial with baseline evaluation, followed by community based intervention and ending up with post evaluation The intervention area was one block with the control being the

neighbouring block. Pregnant women formed the main category of individuals studied Adolescent girls were also additionally taken up The indicators chosen were in the broad categories of knowledge, IFA consumption, deworming, Hb and serum ferritin

Evaluation was carried out at baseline and at the end of the project. Major effort was made to study the knowledge, attitude and practices of pregnant women and adolescent girls Serological studies were carried out, testing blood for Hb levels and serum ferritin Stool examination was done to detert presence of hook worm ova. It was not possible to carry out total hook worm ova count, as trained personnel were not available.

The major findings at baseline were that anemia (11g/dl) was 70.5% in K.V.Kuppam, the intervention area and 68.2% in Gudivatham the control area Serum ferritin (12 ug/l) levels were 40.0% in K.V.Kuppam and 32.7% in the control area IFA tablets consumptions was 40.2%, 20.6% and 18.0% in K.V.Kuppam and 75.3%, 25.09% and 18.8% in Gudiyatham for 30, 60 and 90 tablets respectively Only 12.5% (K.V.K) and 2.7% (Gudiyatham) of pregnant women always wore slippers while going out with 87.2% and 86.5% wearing them sometimes in K.V.Kuppam and Gudiyatham respectively An une pected obeservation was that pregnant women in K.V.Kuppam had better nutritional status as measured by height, weight, arm circumference and calculating BMI

d Project Outcomes

There was change in knowledge in the intervention area leading to changes in practice of early registration, increased IFA consumption Information on deworming was misleading as women migh have confused the mebandazole tablets with other medications The anemia prevalence of anemia among pregnant women (Hb <11g/dl) decreased from 70 5% to 49.9% in the intervention area and increased from 68 2% to 75 5% in the control area Similarly the prevalence of iron deficiency (serum ferritin levels 12 ug/l m decreased from 40% to 76 6% in the intervention and increased from 72 7% to 46 1% in the control area Materials for IEC have been produced which will have continuous use Staff have been trained and sensitised on anemia in pregnancy who are likely to use this knowledge in future settings

e. Lessons Learned

Qualitative research must precede quantitative research

IEC is effective when backed by delivery services

Accurate knowledge is needed uniformly among staff for effective intervention

Multi disciplinary staff ensure effective output of work IEC

IEC is effective with curriculam approach than programme approach

Prevention of anemia in pregnancy should cover adolescent girls and lactating mothers in addition to pregnant women

II. PROJECT OVERVIEW

Iron deficiency anemia (Hemoglobin 11g/dl is a common nutritional problem in both the developed and developing world In India it constitutes a major public health problem and it is estimated that 70-80/ of pregnant women are affected India also has one of the highest rates of severe anemia with an estimated 20/ of pregnant women with severe anemia (hemoglobin < 8 g/dl) The consequences of anemia include increased peri-natal mortality (eg prematurity, still births) low birth weight, increased risk of maternal morbidity and mortality and a 10% reduction in productivity for every 1 g/dl decrease of hemoglobin

The programme aimed to redure anemia by improving the existing iron supplementation activities in one block of Tamil Nadu State, covering an area of approximately 110,000 population and approximately 4 000 pregnant women The target population was primarily pregnant women in this project However, adolescent girls and newly married women were also included in order to prevent anemia before pregnancy.

Strategies adopted to increase early attendance for antenatal care so that women received iron-folic acida (IFA) pills early during pregnancy, educated women and health workers that anemia is a serious problem and that every pregnant women needs to take IFA pills early and regularly, addressed other causes of anemia such as hookworm infestation and dewormed pregnant women during second and third trimester

The project consisted of three phases:

1. A baseline phase to establish anemia and hook worm prevalence rates, causes of and risk factors for anemia, and behavioural barriers to early attendance for antenatal care, addressing anemia and taking IFA pills. This was carried out by undertaking qualitative and quantitative surveys.

2. An intervention phase that included development of information, education and communication (IEC) materials that were be used in training health professionals and community workers and used in an IEC campaign to alert women of reproductive age and other community members that anemia is a serious disease and about the importance of taking the appropriate number of IFA pills before and during pregnancy, improving the distribution system for IFA pills by closely monitoring the supply system and increasing supervision of health staff to ensure a constant supply and distribution of pills, and routine deworming.

3. An evaluation phase to determine outputs and outcomes. This included only quantitative surveys to estimate the increase in knowledge and practices related to anemia, haemoglobin and serum ferritin estimation and presence of hook worm ova in stools.

III. PROJECT BACKGROUND

Brief Description of Research area

RUHSA is a Department of the Christian Medical College and Hospital, Vellore and has been carrying out comprehensive rural health and development work since 1977 K.V.Kuppam Block extends over an area of 150 Sq km with 39 rural Panchayats Each Panchayat has an average population of 2000 with a total population of over 1, 10,000 (Abel et al, 1992) Agriculture is the predominant occupation

In addition to health care delivery family planning services formed an important component. while in a cafeteria approach the major services were available the women picked up only tubectomy almost exclusively with a few going in for IUDs.

Increasing the awareness of women on health related issues was another major input. Initially it started with oral rehydration in diarrhoea, then moved into nutrition education and more recently AIDS awareness

Along with health inputs socio economic development formed another major component. they had a direct bearing on improving the food security by making more food available as milk, eggs and poultry and increasing purchasing power by increasing opportunities for labour and self employed business Adult education was another major activity The specific activities are listed below

Banking schemes, Adult Education, Community Education, Mobile Library, School Health, Vocational Training, Women s Development, Energy Programmes, Relief and Development, Welfare and Rehabilitation, Primary Veterinary Care, Cattle Cross Breeding Programme, Goat Cross Breeding Programme, Community

Broiler Schemes, Social Forestry, Watershed Management, Sericulture, Credit Union, Health Education, Adolescent Girls Programme, Programme for the Poorest of the Poor, Bio-diversity

Research has received emphasis right from RUHSA s inception Polio control using killed polio vaccine was the first major trial. This was followed by another major study on chronic obstructive pulmonary diseases Severe acute respiratory infection was another major research activity

Nutrition research has received the widest support The first Doctoral work was on Basal Metabolic Rate and body size. The research on growth monitoring commonly proved that weighing by itself did not have any beneficial effect. This formed the 2nd Ph D study The third Ph D study identified that Vitamin A supplementation did not have any effect on morbidity and growth The next Ph d work was on Social Indicators of Health Status The fifth Ph.D work studied the socio demographic determinants of maternal and child nutrition The sixth and seventh current studies are on Leprosy and Nutrition and Leprosy and Fertility respectively Besides these, a number of smaller studies have been carried out

Access to Health Care, Health Care System

This block is served effectively both by RUHSA Department of CMCH and the Government RUHSA has a 60 bed secondary health centre catering to about 1200 deliveries each year In addition to family planning and outpatients service, cases requiring additional inputs are referred to the tertiary centre of CMCH, Vellore, 25 kms away This secondary health centre supports a very wide Primary Health Care Programme Four mobile teams consisting of a doctor and a nurse each, conduct 16 mobile clinics each week at fixed location and time There are 4 PHCs

of the Government each covering a population of over 25,000 In addition the community uses the hospitals and private practitioners of the nearby towns RUHSA also provides regular immunisation for children and antenatal care for pregnant women

IV PROJECT OBJECTIVES AND STRATEGIES

OBJECTIVES

1 To reduce the prevalence of iron deficiency anemia (Hb 11 g dl) among pregnant women by 15% over 2 years by

a Ensuring that at least 80% of all pregnant women consume at least 80 tablets of iron and folic acid pills (IFA).

b Promoting early consumption of IFA pills among pregnant women by ensuring at least 75% enrollment into antenatal care in the first trimester and 90% in the second trimester.

c Promoting awareness of anemia and its prevention using information, education and communication strategies

d Providing routine deworming during second and third trimesters to reduce the prevalence of hookworm (Mebendazole 100 mg twice a day for 3 days)

2. To reduce the prevalence of iron deficiency anemia in adolescent and newly married girls by 25% over 2 years by

a. Promoting consumption of IFA tablets (same regimen as for pregnant women)

b Decreasing the prevalence of hookworm infection by 50% (Mebendazole 100 mg twice a day for 3 days)

STRATEGIES

The strategies followed in this project were

1. Early Antenatal Registration and IFA Distribution
2. IEC - Community Based Education Intervention for behaviour change
3. Deworming
4. Monitoring
5. Evaluation

1 Early registration and IFA distribution

a Early antenatal Registration Previously pregnant women were registered for antenatal care only in the 5th month This practice was changed by identifying and recording the pregnant women as early as possible by FCVs and registering positively by 3rd month

b IFA Distribution through clinics, IFA distribution was carried out through the weekly mobile clinics conducted in each peripheral service unit (PSU)

Pregnant women were encouraged to obtain IFA tablets distributed by Government Village Health Nurse (VHN) at home and also from the sub centres and Primary Health Centre (PHC)

2 IEC - Community based Education Intervention for Behaviour change

a) Pregnant Women

1 Messages on anemia

Messages on anemia were developed through a participatory process involving all levels of workers and volunteers Initially there were 12 messages on anemia which were printed as hand bills and distributed to each home in K V Kuppam Block through FCVs Subsequently they were modified to 7 simple messages that were appropriate for

the community and easy for the health workers to remember and disseminate

Information on anemia was printed as handbills to be distributed along with the mass campaign

While these were important this was only a support to the overall education programme.

ii Flash Cards

A set of flash cards containing 10 pictures were developed on the basis of the same messages. These flash cards were used by the FCVs during one to one education to the pregnant women at home, by the RCOs and Health Aides during the group education in their mobile clinic and by FCVs in the community They formed the pictures easy to explain The FCVs considered this most effective tool as it was always available in their hand and one which they could use confidently

iii. Booklet

A booklet was prepared expanding on the messages to be used as a guide by the HA, RCOs and other staff of PUHSA and Government staff and teachers in the school of K.V Kuppam Block This was also considered very effective as it was in their own hands This was very helpful for young educated women Some left them in educated individuals homes overnight for people to read

iv Video

A video was prepared to convey the messages on anemia This was used in the community by screening in an average of 5 houses in each FSU for at least one group organised by each FCV. An autorickshaw was hired to screen this in all the 18 FSUs of K V Kuppam Block Since time was short and its access was limited. The FCVs did not value

this much However, for the adolescent girls both in the community and in the schools it was considered effective Using real people involved in the routine work in the area made it easily for them to identify with the video

v Audio Cassettes

An audio cassette consisting of 8 songs on anemia along with commentary was released These were provided to the FDVs to rotate through different homes where a tape recorder was available. Each FDV made this available to about 4 -6 houses Some used this in tea shops and also broadcast the songs through public address system during special function It was not as effective as e pected

Various approaches followed in IEC are

1. Pregnant women

a One to one Education

FDV visited each one of the pregnant women in her area through the project period and educated her on the messages of anemia using the flash cards This visit was made frequently during the pregnancy period Thus the entire study block was covered by 117 FDVs each serving an average of 1000 population This method was considered very effective

b Group teaching in the community

FDVs and the respective RDDs gathered the group of pregnant women in her area (Supervisor and the field staff made an assessment of the knowledge of pregnant women by asking question to verify the impact of one to one teaching by FDVs) FDV taught the group about the facts of anemia using flash cards Field staff asked questions to the group to make sure that each pregnant women was knowledgeable about anemia All the doubts raised by pregnant women were

clarified by the field staff The discussions held were lively The group teaching came to an end when all doubts were clarified. This group teaching was carried out in all 117 FCV areas gathering them in one or two villages of each FCV. This method was effective.

c Group teaching in the clinic

Mobile clinics are conducted each week in each PSU in the study block routinely This is manned by a doctor, a nurse along with RCO, HA and FCVs of that respective FSU During this clinic RCO, FCV and HA together gather the pregnant women and taught them on the messages of anemia using flash cards and discussion This method was effective

7 Adolescent Girls

a Workshop in the community

A need based curriculum was planned to conduct the workshop for adolescents. This was carried out in the month of may 1998 in 26 villages with 2 centres in each making sure to cover 18 FSUs The vacation month was ideal This enables the girls to attend as the centres were easily accessible A total of 10 staff members were trained to carry out this programme (including nurses, FCOs, Health Educator) The programme consisted of 2 short lectures on anemia in pregnancy and adolescent separately backed by flash cards and video Lively discussion followed each programme lasting about 7 hours at the end of which lunch was provided to all the participants Some parents refused to send their adolescent daughters for an education on a topic involving pregnancy This was considered the most effective programme if we had given prizes to the best students the enthusiasm would have probably even more

h Workshop in the school

A half day programme on anemia was arrange in all the 17 schools except one in K.V.Kuppam Block with the permission of the Head Master-in-Charge of the school A structured curriculum was followed uniformly in all the schools Facts on anemia was taught using flash cards backed up by the distribution of pamphlets The video on anemia was screened After this a review was done by asking questions Pre assessment was carried out to assess the knowledge of girls before the education input Then post evaluation was carried on to assess the increase in knowledge The questions were written on the board separately School boys were also actively involved Again because of the begining of the school it did not affect classes and was welcomed

General Population

a The general population was covered in most group education processes when videos displayed by the FCVs in homes and in the community

h Campaign approach

Mass Campaigns have been one of RUHSA s main strategy for behaviour modification on any area We did not want to miss this for anemia control

In this campaign a loud speaker was fitted onto a RUHSA vehicle with an amplifier, tape recorder and a mike Songs on anemia were played The health educator, nurses and other students were used in broadcasting messages in the villages Normally we would cover each peripheral service unit in one full day Due to shortage of time we could carry this out totally only for five days

Following the broadcast of messages, printed hand bills were distributed to those people requesting and those in the vicinity. In this way messages on anemia were disseminated among the general community as well.

I. Deworming

Pregnant women were issued mebandazole tablets in the mobile clinics routinely either in the second or I trimester. There were certain ethical questions raised by young medical graduates who were involved in the programme. To satisfy their needs attempts were made to get additional information on this aspect from Mother Care.

4 MONITORING

a Pregnant women identification and recording

FCV identified all pregnant women in her area and wrote it in her note book. All FCVs of one PSU reported this to the respective Health Aide once in a week either on the clinic day or at the review meeting time. The HA RECORDED it in her FSU antenatal register. This FCV identification of pregnant mother early was monitored by RCO and the field staff when they went for supervisory visits.

b Pregnant women registration

FCV motivated each pregnant women for early registration. HA REGISTERED the pregnant women when they came for antenatal check up either to the mobile clinic or to RUHSA Hospital. If they are registered in the Govt. or outside, the information was obtained by FCV or HA or RCO of that respective PSU.

There is a weekly review meeting held at each FSU amongst RCO, HA and FCV. This helped in discussing the problems of identification and registering of pregnant women and sorting out problem.

c Procurement of IFA and Mebendazole

When pregnant women come to for antenatal check up, they are issued 10 IFA tablets by the mobile doctors or nurse or FCO or HA If her first visit in the 1st trimester she was issued IFA in her subsequent visits at the 4th month These were registered on the ANC register on the day of the clinic or the following day transferring it from the AN card of each pregnant women This recorded information on the register maintained by the HA is computerised every month by the statistical assistant in the centre This is consolidated and made available for discussion in the review meetings at CSU.

Once in a month or two, a review meeting was held in CSU for all FCV & HA, on the early identification, early registisLration procurement of IFA and Mebe etc There was a discussion and comparison made among FCVs and between FSUs on their performance

d. Consumption of IFA by pregnant women

FCV during her field visit to each pregnant women confirmed the consumption of IFA by counting the left over Field visit was made by the field staff for supervising the education given to pregnant women by FCV and consumption of IFA h counting the left over tablets At later stage of the project the monitoring card was issued to each pregnant women in the clinic and they maintained the card for a month and made ticks and returned it to the nurses in the clinics This served its purpose of knowing the consumption status of pregnant women.

e. IEC Component

The one to one education to pregnant women was monitored during the field visits of the supervisory staff by enquiring the pregnant women and confirming the knowledge obtained by each. The same is verified during the group teaching conducted by the field staff in each FCV area organised collectively by RCO and FCV The field staff maintained a note book to record their visits and submitted a report

The group teaching was scheduled with a structured programme According to the programme plan, this was supervised by the Assistant Project Officer through spot checks

The clinic based group teaching was scheduled every week in all the mobile clinics either by clinic or by the RCO or by HA or collectively These were monitored by the field staff, programme assistant and Co-investigator regularly. The effectiveness of these programmes were discussed during the regular monthly review meetings.

Review meetings were held at RUHSA once in a month or two During this meeting a quiz and individual assessment were conducted to verify knowledge of all the health care providers by reciting the messages on anemia correctly.

f. Adolescents

1. Workshop in the Community

It was a structured programme conducted through out the Block with scheduled dates In each workshop quiz was conducted to make sure the knowledge on anemia was transferred effectively The groups were divided into 3 or more according to the strength in each place and marks were given to each group The marks obtained by each group gave the monitoring data on the performance of this workshop This is attached in the appendix.

2.Workshop in Schools

This again was a structured programme conducted in each school for the girls. This programme was monitored through a Pre-Post test carried out to measure the knowledge change among the adolescent girls. The consolidated increase in marks are attached in appendi

5. EVALUATION

Evaluation Design

Evaluation	Study Block	Control Block
	P.V Puppam	Gudiyatham
I Pre Evaluation (Base Line) June, July, 96	With Intervention - For Pregnant Women - Adolescents IFC IFA Mebendazole	No Intervention
II Post Evaluation July, Aug 98		

1 PRE EVALUATION - QUANTITATIVE

a. Objectives of Pre Evaluation (Quantitative)

1 To Determine the prevalence of anaemia and iron deficiency (ID) among pregnant women

2 To examine whether anaemia and ID is correlated with the following socio economic and obstetric variables

a) Socio Economic

Caste, Type of roof
Family size, availability of latrine
Type of Family
Education, Occupation

b) Obstetric

Age at menarche
Age at Marriage
Age at 1st Pregnancy
Gravida, Parity, No of living children
Still birth, Abortions,
Spacing, Chronic malnutrition

3 To examine the utility of clinical signs and symptoms in screening anaemia

4 To assess the knowledge, attitude and practice of pregnant women on the following aspects of anaemia

Knowledge	Attitude	Practice
- Signs & Symptoms - Causes, Consequences. - IFA procurement, advantage, dosage, duration, side effects. - Hook worm infestation - Food Habits	- IFA & Health during pregnancy - IFA & Health of the baby - Importance of preventing anaemia. - Need to consume IFA - Increased diet need	- Diet during pregnancy - ANC Care - IFA supplementation (Dosage, duration, side effects, sources, storage, counselling

b. Highlights of Findings:

Prevalence of anaemia was found to be 70.5% in K.V.Kuppam block and 67.3% in Gudiyatham block among pregnant women and 40.0% in KVK block and 72.7% in Gudiyatham block among adolescent girls. The Gudiyatham block and K.V.Kuppam block are comparable, with socio economic characteristics except nutritional status. The clinical signs and symptoms cannot be used for screening anaemia. Knowledge of pregnant women and adolescent girls are very low in both the blocks. Neither socio economic variables nor obstetric variables were found to be risk factors for anaemia. Probably this design may not be an appropriate one for obstetric variables.

c Use

The screening using clinical signs and symptoms for the detection of anaemia was not done during the post evaluation

2. PRE EVALUATION - QUALITATIVE

. Objectives of Pre Evaluation (Qualitative)

1 To obtain the community based perception about maternal problems and their association with anemia.

2 To explore indepth information on the cultural based perception of rural pregnant women regarding maternal anemia, its causes, signs and symptoms, consequences, prevention and treatment.

3 To obtain culturally held beliefs and practices of rural pregnant women regarding maternal anemia IFA consumption pattern and diet during pregnancy from health care providers of the Govt and NGO Furthermore, to seek their views on the desired treatment seeking behaviour (as advised by them) Vs the actual treatment seeking behaviour as adopted by them

4 To document the health seeking behaviour of rural pregnant women on anemia

5 To document the treatment practices of traditional healers and medical officers of Govt and NGO for anemia during pregnancy

6 To elicit the level of awareness and perceptions of pregnant women and health care providers regarding the Govt and NGO iron folate supplementation programme and IFC of anemia

7 To obtain the perceptions on hot foods and cold foods during pregnancy and foods that are consumed and avoided during pregnancy including the utilisation of locally available iron rich foods

8 To obtain the perceptions of adolescents girls on anemia and menstruation, anemia and physical growth, anemia and physical activity anemia and pregnancy

9 To use this data to evolve a health education strategy for pregnant women and adolescent girls to prevent and control anemia among pregnant women

b. Highlights of findings:

There was little knowledge about the facts of anaemia and it was not uniform among the health care providers

The Tamil equvalent word for anaemia is not known to the community The local words used for anaemia were identified The signs and symptoms, cause, consequences, prevention of anaemia among pregnant women and adolescents were not known unless it was probed using appropriate local words. Anaemia was not considered as a maternal or adolescent problem

Use:

Adolescent girls base line survey questionnaire was modified based on the finding of the qualitative survey among pregnant women

Health education strategy for pregnant women and adolescent girls were deviced based on the qualitative research findings

3 POST EVALUATION

a Objectives of Post Evaluation

1. To measure the decrease in the prevalence of anaemia and iron deficiency among pregnant women and adolescence
2. To determine the increase in knowledge, attitude and practice of anaemia related facts among pregnant women and adolescence.
3. To assess the effectiveness of intervention carried out in the study block

b. High Lights of Findings

Table - 1 : Prevalence of Anemia - HB Levels, among pregnant women - Comparison

Evaluation		K.V Kuppam Study	Gudiyatham Control	Difference %
Pre Evaluation	N	464	471	
Hb 11g/dl	No	337	394	
	%	70.5	83.7	13.2
Post Evaluation	N	401	474	
Hb 11g/dl	No	200	350	
	%	49.9	73.8	23.9
Difference	%	20.6	9.7	10.9

Table - 2 : Prevalence of Iron Deficiency - SF Levels among pregnant women - Comparison

Evaluation		K.V Kuppam Study	Gudiyatham Control	Difference %
Pre Evaluation	N	260	311	
SF 12 ng/l	No	104	69	
	%	40.0	22.2	17.8
Post Evaluation	N	101	89	
SF 12 ng/l	No	27	41	
		26.7	46.1	19.4
Difference	%	13.4	17.4	

Table - 3 Prevalence of Hook worm OVA in Stools among Pregnant Women - Comparison

Evaluation		K.V Kuppam Study	Gudiyatham Control
Pre Evaluation		N A	N A
Post Evaluation	N	68	72
Presence of Hookworm	No	10	14
	%	14.7	19.4

Effectiveness of various methods

		Effectiveness	Purpose
- Flash Cards		++++	Detailed knowledge
- Video Cassettes -	Auto/FCV	++	Intimation on anemia
	Ad WS	+++	Support to lecture
	School	++	Support to lecture
- Audio Cassette			
- Booklet		+++	Detailed knowledge
- Leaflet		++	Information on key messages
- Campaign		++	Sensitising general public
- One to one teaching		++++	Detailed knowledge
- Group Education		+++	Detailed knowledge
- Adolescent girls Workshop in Community		++++	Detailed knowledge
- Adolescent girls Workshop in Schools		+++	Detailed knowledge

VI PROJECT INTERVENTION (MATRIX?)

PROJECT INTERVENTION STAGES	INDICATORS	NUMBER
a INPUTS 1 PERSONNEL		
a PROFESSIONAL	NO OF PERSONNEL ACTIVELY INVOLVED	
Physician and Head of Department	No of Investigator	
Selection Grade Training Officer	No of Co-Investigator	
Consultant Training Officer (Statistician)	No of Statistician	
Health Educator	No of Health Educator	
Nutritionist	No of Nutritionist	
Nurses	No of Nurses	
Lab. Technicians	No of Laboratory Technician	
Rural Community Officer	No of Rural Community Officer	
Field Staff	No of Field Staff	
Health Aides	No of Health Aide	
Family Care Volunteers	No of Family Care Volunteers	11
b ADMINISTRATION		
Accountant	No of Accounts	
Secretarial Staff	No of Secretarial Staff	
Computer Terminal Operator	Computer Terminal Operator	
2 MATERIAL	NO OF UNITS	
Motor bikes	No of Motor Bikes	
Computer	No of Computer	
Floppies, Papers	No of Floppies	
Tape Recorders, Tapes	No of Tap Recorders	
Audio Cassettes	No of Audio tapes	1
Video Cassettes	No of Video Cassette	
IFA Tablets	No of IFA Tablets	1
Mebe Tablets	No of Mebe Tablets	1
Monitoring Cards	No of Monitoring cards for IFA Consumption	70
b PROCESS 1 PREPARATION OF IEC MATERIALS UTILISING QUALITATIVE RESEARCH FINDINGS		
Pamplets	No of Handbills / Pamplets printed and distributed	50,0
Flash Cards	No of Flash Cards Prepared and used	2

Booklet	No of Booklet	
Video Cassette	No of Video cassettes produced	1
Audio Cassette	No. of Audio Cassettes	1
Training Govt FHC Staff on anemia Distribution of Pamphlets, Booklet to all NGO'sGO staff, school teachers	No of Training organised for FHC staff	
Training on the use of Flash Cards to Volunteers	No of Trainings conducted for Volunteers to use the Flash cards	
Conducting weekly meeting at FSU by RCOs with Volunteers	No of weekly review meetings held at each FSU	
Conducting monthly one day review meeting at CSU with all FCVs, HAs, RCOs, Field staff and anemia team	No of monthly review meetings held at CSU	11
Maintain Registers at FSU	No of ANC Register maintained properly	18
Monthly data entry on the monitoring data	Up to date data entry on pregnant women	All
Preparation of Curriculum	Prepared curriculum for training adolescent girls	
Teaching anemia to Pregnant women and adolescent girls through a number of strategies	No of Strategies developed for IEC	

2 IFA Tablets & Deworming

Distribution of IFA tablets	No of pregnant women registered early	
Identification of pregnant women for early registration	No of pregnant women IFA distributed	
Early registration of pregnant women for early consumption of IFA	No of pregnant women IFA consumed	
Deworming of pregnant women in the 2nd or 3rd trimester	No. of prgnant women Mebe distributed	

- Evaluation

  Baseline Qualitative and quantitative surveys among pregnant women and adolescent girls in the study area and control area — Evaluation Reports

  Post Evaluation survey

c OUTPUTS 1 IEC

  Video Cassette on anemia — Increased in knowledge on anemia

  Audio Cassette on anemia — No of pregnant women registered in the 1st trimester (75/)
  Booklet on anemia — 2nd trimester (90/)

  Pamphlet on anemia — No of pregnant women consumed IFA (80/ 8) Tab)
  Increase in knowledge about different aspects of anemia among pregnant women and adolescents — No of pregnant women consumed of Mebe in 2nd or 3rd trimester (50/)

  - relating anemia with local terms — Decrease in the Prevalence of iron deficiency
  - definition — Decrease among pregnant women from 70/ to 60/
  - consequences — Decrease among adolescents from / to / (75/)
  - prevention — Decrease in the prevalence of Hookworm infestation among adolescent by 50/
  - increase diet during pregnancy greeny leafy vegetables
  - iron enhansers and inhibitors

  IFA and anemia
  - Sources of IFA
  - Side effects of IFA
  - Deworming and anemia

- IFA Tablets and deworming
  Consumption of Mebe tablets
  Wearing Slippers
  Early registration of pregnancy

- Evaluation
  Baseline Qualitative Survey Report
  Baseline Quantitative Survey Report
  Post Evaluation Survey Report

VII LESSONS LEARNED

1. When qualitative research precedes quantitative research on a particular aspect, it improves the quality of the quantitative research and facilitates more effective and appropriate intervention

2 Qualitative research by itself gives a valuable information regarding any issue which has not been properly understood by the community

3 IEC is effective for the behavioural changes among the target group if the provision of services are available, affordable and accessible.

4 Effective intervention makes changes in the behaviour of the population (GO & NGO).

5 Accurate knowledge on any issue to be handled is very much needed uniformly among the health care providers for effective intervention

6 A team of multidisciplinary professionals ensures an effective output (Doctors, Nurses, Researcher, Statistician, Health Educator, Lab Technician, Volunteers)

7 Success of a programme which deals with an invasive procedures such as drawing blood from the general population depends on the efficiency of the laboratory technician (pain free blood drawing)

8 IEC Programme which carried out using curriculum approach is more effective than when using programme approach

9 The project focussed on adolescents and newly married in order to prevent anemia before pregnancy However, it was observed that among newly married spacing between marriage and first pregnancy was negligible It would have been better if we had concentrated either on the group of mothers with one child and two children planning to have a next child.

10 Clinical signs and symptoms cannot be used for screening anemia as the reliability and validity was found to be were low

11 It is necessary to educate women on the purpose of giving any medicine such as mebendazole or IFA and identify with the tablet given Only repeated information makes them relate the tablet with the purpose

VIII RECOMMENDATIONS FOR SCALING UP AND ADDITIONAL RESEARCH (IF INDICATED)

1 There is a need for additional IEC materials on anemia in pregnancy and adolescent

- The effectiveness of IFC component alone in the reduction of Iron deficiency anemia needs to be studied using a different research design having equal service component in both study and control area

- It is necessary to evolve a clear policy on whether deworming should be routine or only following stool examination for pregnant women What is the published literature on antihelminthic treatment to pregnant women

APPENDIX - A

a. E amples

A Govindamma W/o Krishnan of melmoil village she was identified as anemia during the antenatal period by the Family Care Volunteer She referred her to RUHSA and after regular IFA she delivered a normal baby at home

B. Family Care Volunteers are the most peripheral persons promoting health in the community Many are illiterate Some have been functioning in this role since 1979 Over the years they have gained valuable e perience in health education and communication

In the anemia project they were very specificially taught on messages on anemia in pregnancy By constantly teaching others they knew by memory all the messages developed. Some had gained to much confidence that they were able educate pregnant women so much that these pregnant women themselves could teach other pregnant women It as astonishing to have a few FCVs invited by Government Village Health Nurses and nutrition staff to take classes on anemia in pregnanc, during the group teaching organised by the Government staff

C While giving feed back during a review meeting the FCVs felt proud that they could change certain traditional practices relating to dietary habits. Generally guava fruit is not eaten by pregnant women Teaching the pregnant women that this fruit was an iron enhancers they were able to make at least some mothers start eating this fruit Similarly lime was considered a cold fruit and was avoided by pregnant women as they were supposed to get cold The FCVs were able to make some mothers take fresh lime juice as well

D) One of the last comments made by the Family Care Volunteers was that by continuously teaching about anemia in pregnancy some women were fed up of the FCVs. Having learnt all about anemia these women asked the FCVs not to come to their homes again to teach on anemia.

E. One of the feed back by a Rural Community Officer was that because of the anemia project health education had become a regular part of the clinic programme. It has become such a habit now that pregnant women when they come to the clinic sit on the benches waiting for the health education unlike their previous practice of rushing to see the doctor.

APPENDIX - B

KEY INDICATORS

1 Number of Hand bills , Famphlets printed and distributed

2 Number of Flash Cards set prepared and used

3 Number of Booklets printed and distributed

4. Number of Audio cassettes produced and used

5 Number of Video cassettes produced and used

6 Number of strategies developed for IEC

7. Number of Training organised for

a) Volunteers

b) RUHSA Staff

c) Government Staff

8 Number of weekly review meetings held at PSU

9. Number of monthly meetings held at CSU

10 Number of ANC Registers maintained up to date

11 Up to date data entry of pregnant women ANC register

12 No of pregnant women identified in 1st trimester

13. No of pregnant women registered early

14 No of pregnant women IFA procured

15 No of pregnant women IFA consumed

16 Increased knowledge on anemia among pregnant women & adolescent girls

17 Decrease in the prevalence of anaemia (HB level) among pregnant women and adolescent girls

18 Decrease in the prevalence of Iron deficiency (SF level) among pregnant women and adolescent girls

19 Decrease in the prevalence of Hook worm infestation among pregnant women and adolescent girls.

APPENDIX - C

RUHSA DEPARTMENT, CMCH, VELLORE
WORKSHOP ON ANAEMIA FOR ADOLESCENT GIRLS IN K.V.KUPPAM BLOCK

1. **INTRODUCTION:**

Iron deficiency anaemia is one of the most common nutritional deficiency diseases found in India It particularly affects pre school children, adolescent girls, pregnant women and women of child bearing age Anaemia and iron depletion is common among adolescent girls because of the combined stress of growth and menstruation Since girls in India marry and conceive at a early age majority of them are found to suffer from anaemia As a result many of them suffer adverse pregnancy outcomes Anaemia during adolescence can be prevented by iron supplementation At present there is no such programme of providing iron supplements to adolescent girls However, anaemia during adolescence can also be prevented by bringing about behavioural changes in the dietary intake Secondly, it is also important that adolescent girls are aware of anaemia during pregnancy and the prevention of it. Keeping the above in view a half day workshop is being organised for adolescent girls with the following goal At the end of the workshop the adolescent girls will be equipped with the knowledge, attitude and skills of preventing anaemia

2. **NEEDS ASSESSMENT**

BASIC NEEDS of the adolescent girls will be identified by discussion with adolescent girls, qualitative report and through the experience of RUHSA Staff
DESIRED LEVEL of the adolescent girls will be identified through individual and group discussion
The ENTRY LEVEL of the adolescent girls will be assessed through quiz programme

3. **GENERAL OBJECTIVES:**

a) To discuss the growth changes during adolescence
b) To describe causes, consequences and prevention of anaemia during adolescence
c) To discuss anaemia during pregnancy
d) To discuss menstrual problems during adolescence

4 **METHODOLOGY:** Lecture, Demonstrations, Video and Games

RESOURCE PERSONNEL Dr Sampathkumar,Mrs Jayalakshmi,Mrs Greeda, Mrs Shanthi Jeevan, Mrs.Kumutham Ravi, Ms Lilly John, Nurses & RCOs

5 **WORKSHOP IMPLEMENTATION.**

Venue	CHEW or other appropriate place in the community
Duration	Half day
Co ordinator	Dr V Sampathkumar / Mrs Jayalakshmi
Medium of Instruction	Tamil

6 **EVALUATION:**
a) Content Evaluation through quiz
b) Process Evaluation through group discussion

RUHSA DEPARTMENT, CMCH, VELLORE

WORKSHOP ON "ANAEMIA FOR ADOLESCENT GIRLS"

CURRICULUM PLAN

DATE/TIME	TOPIC	OBJECTIVES	METHODOLOGY	RESOURCE PERSON
09 00 - 09 45	Growth during Adolescence	- To define adolescence - To state the changes during Puberty - To discuss adolescent growth	Lecture	Mrs Kumutham Ravi / Mrs Shanthi Jeevan/ Nurses
09 45 - 10 45	Anaemia during Adolescence	- To define anaemia - To list the signs and symptoms and identification of anaemia - To state the perceptions of the community on anaemia - To state the causes of anaemia during adolescence - To list the consequence of anaemia during adolescence - To discuss the methods of preventing anaemia during adolescence	Lecture & Discussion	Dr Sampathkumar / Mrs Jayalakshmi
11 00 - 12 00	Anaemia during Pregnancy	- To state the physiological changes during pregnancy - To state the importance of antenatal care and early ANC registration - To list the causes of anaemia during pregnancy - To list the consequences of anaemia during pregnancy - To discuss the dietary approach of preventing anaemia during pregnancy - To discuss the iron supplementation programme to prevent anaemia - To discuss hookworm infestation and prevention	Lecture, Demonstration & Video	Dr Sampathkumar / Mrs Jayalakshmi / RCDs
12 00 - 12 30	Menstrual Problems during adolescence	- To define normal flow in terms of quantity and duration - To state the relationship between menstruation and anaemia - To list the menstrual problems of adolescent girls - To state the methods of preventing menstrual problems	Lecture & Discussion	Mrs Shanthi Jeevan / Mrs Kumutham Ravi / Nurses
12 30 - 01 00	Post-Evaluation	- To assess the knowledge of the participants by the end of the training	Quiz	Dr Sampathkumar / Mrs Jayalakshmi

//CURRADO KVK 23 3 //

RUHSA DEPARTMENT, CMCH, VELLORE

WORKSHOP ON "ANAEMIA FOR ADOLESCENT GIRLS"

POST EVALUATION SCHEDULE

04.05.98 TO 23.05.98

1. There is rapid growth during adolescence.

Yes / No

2 Define Anaemia

3 Mention 3 signs and symptoms of anaemia

4 Specify the test that helps to detect anaemia

5 State 2 causes of anaemia during adolescence

6 State 2 causes of anaemia during pregnancy

7 Mention 2 consequences of anaemia during adolescence

8 Mention 3 consequences of anaemia during pregnancy.

9 State 2 methods of preventing anaemia during adolescence

10 State 3 methods of preventing anaemia during pregnancy

//3 2 POSTEVA ANE//

APPENDIX - D

LIST OF IEC MATERIALS

1. Hand bill of messages on anemia
2. Hand bill on general information on anemia
3. Flash Cards set on anemia in pregnancy
4. Booklet on anemia in pregnancy
5. Audio cassette with 8 songs and commentary
6. Video on anemia (20 mts)

APPENDIX - E

LIST OF ALL PRODUCTS

1 IEC materials as in Appendix C

2 Reports

a Baseline quantitative report

b Base line qualitative report

i Provider and Client Perspectives on Anemia Data From India - 87 pages - Dr Peggy

ii Formative Research for Designing Anemia Control Intervention/Experiences in Applying Qualitative and Participatory/Research Methods in India - 57 Pages - Dr Subhada

c. Quarterly reports (9)

d Final close out report

e Final project report (To be ready)

MONITORING AND EVALUATION OF ANEMIA CONTROL PROGRAMME

Area (What)		
1 Identification of Pregnant Women	Who	FCV
	Monitoring Indicator	No of pregnant women reported by FCV
	How	FCV note book, Field Staff during supervisory visit.
	Problems	Pregnant women go out of area for a longer period
	Solution :	When they come back or through their family member & neighbours
2 Registeration of Pregnant women early	Who	HA motivated by FCV, Pregnant women coming to the clinic or else where
	Monitoring Indicator .	No of pregnant women registered in RUHSA and outside -1st Trimester -2nd Trimester -3rd Trimester
	How .	ANC Register maintained by HA -Review Meetings -Discussion on the Monthly Report & Making Comparison
	Problems :	Information while registering outside
	Solution .	FCVs get information and inform the HA
3 Procurement of IFA & Mebe by Pregnant Women	Who :	Doctor, Nurse, PCN, HA through Mobile Clinic and RUHSA Hospital Govt VHNs at home
	Monitoring Indicator .	No of pregnant women obtained IFA in -1st Trimester -2nd Trimester -3rd Trimester
	How	ANC Register Getting Information through FCV Presenting Consolidated report FCV wise, FSU wise during review metting

	Problems	
	Solution	HA or RCO visiting and getting the information Enquiring from the family members
4 Consumption of IFA	Who	FCV, RCO, Field Staff
	Monitoring Indicator	No of pregnant women consumed IFA which are procured
	How	Left over tablets are checked during Home visit by FCV, RCO Supervisory Visit by Field Staff Monitoring Card issued and collected through nurses at the mobile clinic
	Problems	Not possible when pregnant women are not there at the time of visit Not all card were returned
	Solution	No solution as it was towards the end of the programme

IEC COMPONENT
a PREGNANT WOMEN

1 One to One Education to Pregnant Women	Who	FCV
	Monitoring Indicator	No of pregnant women educated through FCVs
	How	Field staff verified during field visit to pregnant women
	Problems	When pregnant women are not at home When pregnant women stay outside the Block
	Solution	
2 Group Teaching	Who	Field Staff
	Monitoring Indicator	No of groups taught (1-2 groups per FCV area) No of pregnant women gathered
	How	Asst Project Officer Supervisor Maintained note book to record and report by Field Staff
	Problems	
	Solution	

-	Clinic Based Group Teaching	Who	: RCO, HA, FCV, Mobile Clinic Nurses
		Monitoring Indicator	No of group teachings held No of pregnant women participated
		How	: Supervisory visit by field staff
		Problems	:
		Solution	:

ADOLESCENT

1	Workshop in the Community	Who	10 Staff trained including Health Educator, Nurses, Nutritionist and RCOs Girls were organised through FCVs and RCOS
		Monitoring Indicator	Need based curriculum developed and follwed No of workshops conducted in the community (76 WS) No. of girls participated in each WS (1402 adolescents) Average marks scored by each group during quiz
		How	Report submitted Supervisory visit by the Incharge
		Problems	No problem
		Solution	
2.	Workshop in the Schools	Who	Health Educator
		Monitoring Indicator	Need based curriculum developed and followed
		How	Report submitted Increase in the knowledge about anemia through pre and post evaluation
		Problems	No problem
		Solution	

RUHSA DEPARTMENT CMC&H,VELLORE

ANEMIA CONTROL PROGRAMME

ADOLESCENT GIRLS - COMMUNITY WORKSHOP

QUIZ SCORES

	VILLAGE	NO OF PARTICI-PANTS	MARKS SCORED BY DIFFERENT GROUPS TOTAL MARKS = 50					AVERAGE GROUP SCORE
			GR I	GR II	GR III	GR IV	GR V	
1	CHENNANKUPPAM	32	45	39	46	-	-	4
2	KAVANUR	35	32	48	30	-	-	4
3	PILLANTHI PATTU	35	50	40	50	-	-	4
4	KILVILACHUR NOON	37	20	32	32	32	20	2
5	MALIPATTU	45	42	40	46	44	-	4
6	KALAMPATTU	39	50	50	50	-	-	5
7	SENJI	62	44	40	45	40	35	4
8	SENJI MOTTUR	44	35	48	50	50	-	4
9	VEPPANERI TEMPLE	36	47	30	50	-	-	4
10	VEPPANERI	40	38	36	36	20	20	2
11	KATTERI COLONY	42	30	30	30	36	-	3
12	KATTERI II	41	50	40	35	-	-	3
13	EDA KRISHNAPURAM	57	35	38	50	44	-	4
14	SHOLAMUR	54	50	30	20	-	-	3
15	ARUMBAKKAN	46	25	30	30	30	-	2
16	THONDANTHULASI	54	30	41	32	38	-	3
17	MELMANGALAPPAM	39	32	46	32	-	-	3
18	ALANGANERI	50	39	35	36	30	-	3
19	ANNANKUDI	42	30	32	39	30	-	3
20	THIRUMANI	30	45	32	33	-	-	3
21	KAVASAMEET	59	20	25	35	30	-	2
22	MUDINAMEET	41	20	47	31	-	-	3
23	PERUMANKUPPAM	36	30	30	44	36	-	3
24	KANGUPPAM	44	50	40	38	-	-	4
25	K.K PUPAM	30	42	32	35	30	-	3
26	MACHANUR	35	30	40	35	32	-	3
27	KOSAVANKUDIR	41	32	30	27	25	-	3
28	PASUMATHUR MV	46	48	49	32	-	-	4
29	KRISHNAPURAM	42	35	49	42	-	-	4
30	ANGARANKUPPAM	38	42	20	40	22	-	3
31	D K KUPPAM	30	28	47	27	-	-	3
32	GEMMANKUPPAM	26	20	50	30	-		3
33	KELAIATHUR	34	38	32	35	32	-	3
34	SETHUVANDAI	34	48	48	40	-	-	4
35	VEPPUR	44	35	40	25	30	-	3
36	AMMANKUPPAM	34	40	32	30	35	-	3
		1407					AVERAGE	3

ANEMIA CONTROL RPOGRAMME

ADOLOSCENT GIRLS - WORKSHOP IN SCHOOLS

PRE - POST TEST AVERAGE MARKS

SI NO	SCHOOLS IN THIVI BLOCK	NO	PRE EVA	POST EVA	SIGNIFICANT LEVEL
1	GOVT HR SEC SCHOOL SENJI	171	14 44	68 77	P< 001
2	GOVT HR SCHOOL VADUGANTHANGAI	51	1 4	66 4	F 001
3	GOVT HR SCHOOL PASUMATHUR	55	2 2	72.6	P 001
4	GOVT HR SCHOOL R S GUNIYATHAM	72	1 0	65 6	F 001
5	GOVT HR SCHOOL THOSAVANPUDUR	89	3 1	48 4	F 001
6	GOVT HR SCHOOL BOYS' GIRLS LATTERI	274	3 3	65 6	F 001
7	GOVT HR SEC SCHOOL PILLANDIPATTU	170	10.9	70.1	P 001
8	GOVT HR SCHOOL MACHANUR	70	0 06	70 1	F 001
9	GOVT GIRLS HIGH SCHOOL THIRUPPAM	272	2.5	97 6	F .001
10	GOVT BOYS HIGH SCHOOL	116	4 0	76 9	F 001
		1410	4 29	69 92	F 001

APPENDIX - F

SYNOPSIS OF EVALUATION

INTRODUCTION

Iron deficiency anemia (Haemoglobin 11g/dl) is a common nutritional problem in the developing and developed world. This programme aimed to reduce anemia in one block of rural Tamilnadu, India, covering a population of over 110,000 population.

There are no studies available that have examined the effects of both socio economic and obstetric factors together on anemia in pregnancy. Further the awareness of pregnant women on anemia, and their utilisation of iron and folic acid supplementation has also not been researched. It is considered that IEC forms the preferred strategy for the control of anemia.

Against this background this research was undertaken by RUHSA Department, Christian Medical college and Hospital, Vellore Tamil Nadu, India. This was funded by Mother Care Project of John Snow Incorporated, supported by USAID. The following were the objectives of this research project.

1. To reduce the prevalence of iron deficiency anemia (Hb 11 g/dl) among pregnant women by 15% over 5 years by
   a. Ensuring that at least 80% of all pregnant women consume at least 80 tablets of iron and folic acid pills (IFA).
   b. Promoting early consumption of IFA pills among pregnant women by ensuring at least 75% enrollment into antenatal care in the first trimester and 90% in the second trimester.
   c. Promoting awareness of anemia and its prevention using information, education and communication strategies.

d. Providing routine deworming during second and third trimesters to reduce the prevalence of hookworm (Mebendazole 100 mg twice a day for 3 days)

2. To reduce the prevalence of iron deficiency anemia in adolescent and newly married girls by 25% over 2 years by,

a. Promoting consumption of IFA tablets (same regimen as for pregnant women)

b. Decreasing the prevalence of hookworm infection by 50% (Mebendazole 100 mg twice a day for 3 days)

This synopsis describes the evaluation findings observed throughout this project activity

METHODOLOGY

The anemia study composes of a two group Pre-Post Case Control experimental design. K.V.Kuppam Block was selected as the experimental area and Gudiyatham block as the control area. K.V.Kuppam block was selected as the study area because it is the operational area of RUHSA Department of Christian Medical College and Hospital. Gudiyatham Block was selected as the control area because it matches with K.V.Kuppam block in terms of socio economic and geographical characteristics.

Qualitative research was carried out among pregnant women and adolescents to obtain the perceptions and beliefs about anemia among pregnant women. Quantitative survey was conducted in both areas prior to the intervention and after the intervention among pregnant women and adolescent girls. The sampling procedures adopted in the quantitative surveys are furnished below. The data was entered in to the computer using Foxplus Data base package and analysed using SPSS package

SAMPLING

There are 79 panchayats in the study area and 44 panchayats in the control area with a population of 1,10,000 and 1,78,904 respectively. A cluster approach was adopted to select the samples.

Particulars	Pre Study	Evaluation Control	Post Study	Evaluation Control
1 Pregnant women				
a) Sampling Technique	Systematic Sampling	Simple random sampling	Systematic sampling	Simple random sampling
b) Sampling Unit	Panchayat	Panchayat	Panchayat	Panchayat
c) No of Sampled Panchayats	20	20	21	20
d) No of Subjects				
i) For HAF & socio economic	500	510	409	424
ii) HE	464	471	401	404
iii) SF	260	211	1	5
e) Survey Tool	Pretested Schedule	Pretested Schedule	Pretested Schedule	Pretested Schedule
2 Adolescent Girls				
a) Sampling Technique				
1st Stage	Systematic Sampling	Simple random sampling	Systematic sampling	Simple random sampling
2nd Stage	One in 7 girls in each panchayat systematic	One in 7 girls in each panchayat systematic	One in 5 girls in each panchayat systematic	One in 5 girls in each panchayat systematic
b) Sample Unit				
i) 1st stage	Panchayat	Panchayat	Panchayat	Panchayat
ii) 2nd stage	Adolescent girl	Girl	Girl	Girl

c) No of Sampled Panchayats	10	10	20	20
d) No of Subjects				
i) Socio Economic & IAF Survey	155	161	278	271
ii) HB	141	147	207	239
iii) SF	No	No	No	No
e) Survey Tool	Pretested Schedule	Pretested Schedule	Pretested Schedule	Pretested Schedule
f) Data Analysis	Fo plus % SPSS	Fo plus & SPSS	Fo plus & SPSS	Fo plus & SPSS

FINDINGS:

There is considerable increase in the knowledge of facts about anemia among pregnant women and adolesrent girls compared to the control area and the pre evaluation

The prevalence of anemia among pregnant women is decreased by more than 15% (HB 11 gm/dl) over 2 years and the objective of the programme is achieved. There is reduction in the Hookworm infestation of pregnant women compared to the control area Pregnant women started registering early and consume IFA starting from the month of 4th onwards There is an improvement seen in this regard The supporting tables are given below.

b. High Lights of Findings

Table - 1 : Prevalence of Anemia - HB Levels, among pregnant women - Comparison

Evaluation		P.V.Puppam Study	Gudiyatham Control	Difference
Pre Evaluation	N	464	471	
Hb 11g/dl	No	327	294	
	%	70.5	62.5	8.0
Post Evaluation	N	401	474	
Hb 11g/dl	No	200	120	
	%	49.9	75.5	24.4
Difference	%	20.6	7.0	27.7

Table - 2 : Prevalence of Iron Deficiency - SF Levels among pregnant women - Comparison

Evaluation		P.V.Puppam Study	Gudiyatham Control	Difference %
Pre Evaluation	N	260	211	
SF 12 ug/l	No.	104	89	
	%	40.0	42.2	2.2
Post Evaluation	N	101	99	
SF 12 ug/l	No	27	41	
	%	26.6	41.4	14.8
Difference		13.4	0.8	

Table - 3 : Prevalence of Hook worm OVA in Stools among Pregnant Women - Comparison

Evaluation		P.V.Puppam Study	Gudiyatham Control
Pre Evaluation		N A	N A
Post Evaluation	N	68	72
Presence of Hookworm	No	10	34
	%	14.7	47.8

Table - 4 : Knowledge increase about facts of anaemia among pregnant women - Comparison

KNOWLEDGE	KV KUFFAM BLOCK				GUIDYATHAM BLOCK			
	PRE		POST		PRE		POST	
	No.	% n=500	No	% n=409	No.	% n=510	No	% n=464
Definition of Anemia	0	0	199	48.7	Nil	0	14	3.2
Signs & Symptoms of anemia								
Dk	-		55	17.5	-		282	60.8
1 Symptom	-		57	17.9	-		102	22.0
2 Symptom	-		80	20.0	-		60	17.4
3.Symptom	-		54	13.2	-		16	3.5
4 Symptom	-		161	39.4	-		2	0.4
Causes								
Dk	-		17	4.2	-		244	52.6
1 Cause	-		229	56.0	-		214	46.1
2 Causes	-		103	25.2	-		5	1.1
3.Causes	-		49	12.0	-		1	0.2
4 Causes	-		11	2.7	-		0	0.0
Consequences								
Dk	-		87	21.2	-		267	57.5
1 Consequences	-		85	20.8	-		139	30.0
2 Consequences	-		107	26.2	-		51	11.0
3 Consequences	-		170	71.8	-		7	1.5
4 Consequences	-		-	-	-		-	-
Prevention								
Dk	-		7	1.7	-		170	76.6
1	-		161	79.4	-		260	56.0
2	-		241	58.9	-		27	7.1

Awareness IFA-Yes	458	87.7	368	90.0	411	80.6	378	59.9
Dosage								
1 Tab	347	65.7	330	80.7	294	57.6	247	57.3
2 Tabs	76	14.6	27	5.6	99	19.4	76	16.4
3 Tabs	15	2.7	1	0.2	17	3.2	8	1.7
DI	91	17.4	55	13.4	105	20.6	172	28.3
Duration								
5 Months	54	10.4	0	0.0	55	10.8	0	0.0
5-9 Months	374	67.9	345	84.4	309	60.0	307	65.3
DI	174	25.7	64	15.6	149	29.2	161	34.7

Table - 5 : Practice on IFA and Food Habits among pregnant women - Comparison

PRACTICE	PUTHUPPAM BLOCK				GUDIYATHAM BLOCK			
	PRE		POST		PRE		POST	
	No	/ n=522	No	/ n=409	No	/ n=510	No	/ n=464
1 Month of Regn								
1 st	2	0.4	-	-	0	0.0	-	-
2 nd	2	0.4	5	1.2	5	1.0	17	3.7
3 rd	29	5.6	52	12.7	77	15.1	74	15.9
4 th	32	6.1	58	14.2	36	7.1	32	6.9
5 th	196	37.5	157	37.4	151	29.6	129	27.8
6 th	31	5.9	20	4.9	25	4.9	32	6.9
7 th	17	3.3	7	1.7	37	7.3	29	6.3
8 th	4	0.8	3	0.7	9	1.8	5	1.1
9 th	3	0.6	-	-	0	0.0	-	-
No Registered	79	15.1	111	27.1	56	11.0	146	31.5
Not applicable	107	24.3	45	11.0	114	22.3	49	10.6
2. IFA Received								
1 - 30	109	20.9	72	17.8	87	16.3	108	23.3
31 - 60	70	13.4	52	12.0	93	18.0	58	12.5
61 - 90	65	12.5	56	13.7	55	10.8	30	6.5
91 - 120	38	7.3	37	9.0	63	12.2	29	6.3
121	34	6.5	67	15.4	48	9.4	31	6.7
Not received	79	15.1	82	20.0	56	11.0	159	34.3
Not applicable	107	24.3	45	11.0	114	22.3	49	10.6
3. IFA Consumed								
1 - 30	127	24.3	78	19.1	120	23.5	113	24.3
31 - 60	65	12.5	49	12.0	85	16.7	50	10.8
61 - 90	57	10.9	57	13.9	64	12.5	29	6.3
91 - 120	60	11.5	44	10.8	69	13.5	32	6.9
121	5	1.0	55	13.4	2	0.4	24	5.2

Not consumed	–	–	95	70 0	–	–	166	75
Not applicable	–	–	45	11 0	–	–	49	10
4 Diet during Pregnancy								
Increased	171	37 8	126	70 8	167	37 0	100	21
Same	199	38.1	121	27.6	115	25 5	172	77
Decreased	150	29 1	162	79 0	272	45 5	191	41
Amaranth								
Daily	27	5 2	N	–	24	4 7	–	–
Weekly twice) Weekly once)	420	80 4	222	78 7	277	77 9	221	69
Monthly twice) Monthly once) Never	75	14 4	87	21 7	109	21 4	147	70
Cabbage								
Daily	2	0 4	–	-	1	0 2	–	–
Weekly, twice/once	276	64 7	217	57 1	201	59 1	179	70
Monthly twice/ Once/never	184	35 7	197	46 9	208	40 7	225	70
Lemon								
Daily	20	3 8	0	–	11	2 2	0	-
Weekly, twice once	107	20 5	77	18 8	101	19.8	74	15
Monthly twice, once never	95	75 7	220	81 2	198	78 0	190	84
Meat								
Daily	4	0 8	0	–	5	1 0	0	-
Weekly twice once	297	56 2	265	64 8	299	58 6	287	61
Monthly twice/once/ never	225	43 0	220	56 7	206	40 4	177	78

Table - 6 : Knowledge level of Pregnant women in the Intervention and Control area - Comparison

KNOWLEDGE	KV KUPPAM BLOCK		GUDIYATHAM BLOCK		SIGNIFICANCE LEVEL
	POST No.	% n=409	POST No.	% n=464	
Signs & Symptoms					
Eye Pallor	303	74.1	131	28.2	P 0.001
Tongue Pallor	217	53.1	29	6.3	P 0.001
Lips whiteness	156	38.1	11	2.4	P 0.001
Whiteness in nail bed	157	37.2	28	6.0	P 0.001
Spoon shaped nail	48	11.7	5	1.1	P 0.001
Tiredness	143	34.7	64	13.8	P 0.001
Breathlessness	9	2.2	14	3.0	N S
D K	55	13.4	282	60.8	P 0.001
Causes					
Low iron intake	390	95.4	210	45.3	P 0.001
Hook worm Infestation	69	16.9	1	0.2	P 0.001
Early marriage	108	26.4	12	26.1	N S
Frequent Pregnancy/ Less spacing	53	12.9	4	0.9	P 0.001
D K	17	4.2	244	52.6	P 0.001
Consequences					
LBW	251	61.4	83	17.9	P 0.001
Maternal Death	103	25.2	15	3.2	P 0.001
Preterm Delivery	102	24.9	97	20.0	N S
Abortion	106	25.9	26	5.6	P 0.05
Still Birth	127	31.1	44	9.5	P 0.001
D K	87	21.3	267	57.5	P 0.001

Prevention					
Iron Consumption	167	40 8	41	8 8	F 0 001
Increase food consumption	391	95 3	365	57.1	F 0 001
Iron enchanced food consumption	80	19 6	19	4 1	F 0 001
Avoid Iron Inhibitors	2	0 5	–	–	N S
D K	7	1 7	170	26 6	F 0 001
Iron Enhances					
Amaranth	249	60 9	74	15 9	F 0 001
Lemon/Orange	151	36 9	6	1 7	F 0 001
Cabbage	40	9 8	4	0 9	F 0 001
Fresh Guava	11	2 7	4	0 9	F 0 05
Raw Tomato	2	0 5	401	86 4	F 0 001
D K	149	36.4	–	–	F 0.001
Food Inhibitor					
Tea/Coffee	187	44 7	2	0 4	F 0 001
D K	226	55 5	462	99.6	F 0 001
Hook Worm Entrance					
Through Feet	214	52 7	6	1 7	F 0 001
Through Skin	4	1 0	2	0 4	N S
D K	191	46 7	456	98 3	F 0 001
What it Does					
Suck Blood	216	52 8	12	2 6	F 0 001
D K	197	47 2	452	97 4	F 0 001
Prevention of HW					
Deworming	11	2 7	12	2 6	N S
Wear Slipper	140	34 2	17	3 8	F 0 001
Deworming & wear slipper	67	16 4	–	–	F 0 001
D K	191	46 7	479	94 6	F 0 001

During pre evaluation more than 98/ of the pregnant women did answer these questions due to lack of clarity in the questions asked

DETERMINANTS OF ANEMIA AMONG PREGNANT WOMEN

PARTICULARS	PRE EVALUATION	POST EVALUATION
A. VELUPPAM BLOCK STUDY AREA		
1 Socio Economic Factors Model	None	
2 Obstetric Factors Model	1 Armcircumference 2. Age at Menarche (0.7)	
3 Combined Factors Model	1. Armcircumference 2 Husbands Occupation 3 Age at Menarche (0.7%)	
B. GUDIYATHAM BLOCK CONTROL AREA		
1 Socio Economic Factors Model	None	
2. Obstetric Factors Model	1 Parity 2 Still Birth (0.8/)	
3. Combined Factors Model	1. Parity 2 Husbands Occupation 3. Still Birth (0.8%)	

Table - 7 : Increase in Knowledge of Adolescent girls about anemia - Comparison

KNOWLEDGE	IV KUPPAM BLOCK				GUDIYATHAM BLOCK			
	PRE		POST		PRE		POST	
	No	% n=155	No	% n=178	No	% n=161	No	% n=177
1 Signs & Symptoms								
Eye Pallor	-		180	75.6	-		102	77.7
Tongue Pallor	-		127	53.4	-		41	15.0
Lips whiteness	-		57	27.9	-		17	0.4
Pale nail bed	-		102	42.8	-		26	0.9
Spoon shaped nail	-		66	27.7	-		1	0.0
Tiredness	-		135	57.5	-		114	41.8
Breathlessness	-		51	21.4	-		10	0.4
D K	-		24	10.1	-		94	34.4
2. Consequences								
LBW	25	16.1	147	60.1	1	0.6	97	77.7
Maternal Death	2	1.3	76	31.9	1	0.6	20	0.7
Preterm Delivery	7	4.5	37	15.5	1	0.6	14	0.5
Abortion	4	2.6	15	80.6	0	0.0	7	0
Still Birth	5	3.2	59	24.8	0	0.0	6	0.2
Difficult delivery	23	14.8	-		5	3.1		
D K	170	77.4	78	32.8	145	90.1	159	58.2
3 Prevention								
Iron Consumption	-		124	52.1	-		51	18.7
Increase food consumption	41	26.5	175	73.5	24	14.9	168	61.5
Iron enchanced food consumption	-		41	17.0	-		6	0.2
Avoid Iron Inhibitors	-		41	17.0	-		10	0.4
Eat Veg, Fruit	28	18.1	-	-	9	5.6	-	-
ANC checkup	35	22.6			4	2.5		
D K	101	65.2	57	23.9	124	87.2	96	35.2

4 No of IFA per day								
One tab		-	121	55 0		-	66	24 2
Two tab		-	8	0.2		-	22	0 8
Three Tabs		-	11	0 5		-	15	0 5
DK		-	88	77.0		-	169	61.9
5 No of Days								
5 - 9 months of Pregnancy		-	145	60 9		-	91	33 7
D K		-	97	39 1		-	181	66 2
6. HW entrance								
Through Feet	8	-	176	57 9	1	0 6	47	15 8
Through Skin	0	0 0	1	0 0	-	-	6	0 2
Through feet & skin	0	0 0	2	0 1	-	-	6	0 2
D K	147	94 8	108	45 4	160	99 4	218	79 9
7. What it does in body								
Sucks blood	14	9 0	119	50 0	0	0 0	61	22 2
D K	141	91 0	119	50.0	161	100 0	212	77 7
8 Prevention of Hook worm								
Deworming	17	11 0	64	26 9	0	0 0	47	15 8
Wear Slipher	8	5 2	40	16 8	0	0 0	22	0 8
Deworming & Wear Slipher	0	0 0	27	11 2	0	0 0	4	0 1
D K	177	88 4	107	45 0	-	-	204	74 7
9 Age at Marriage								
21 Years	72	46 5	142	59 7	50	31 1	104	38 1
Wrong answers	75	48.7	92	38.7	92	57.1	162	59 2
D K	8	5 2	4	0 1	19	11 8	7	0 2

,/ANEMIA98 RFP 27 2//