



BARODA CITIZENS COUNCIL



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# NUTRITIONAL ANEMIA : A Problem In Search of a Solution ..... Even Today

Shubhada Kanani  
Jai Ghanekar  
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U.S. Agency for  
International Development



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**Shubhada Kanani  
Jai Ghanekar**

Department of Foods and Nutrition  
M S University of Baroda

**Smita Maniar**

Baroda Citizens Council MotherCare Project

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## The MotherCare Research Team

- Shubhada Kanani  
Hon Project Director BCC  
and Reader Department of Foods & Nutrition  
M S University of Baroda
- Vaishali Zararia  
Field Officer BCC
- Jai Ghanekar  
Ph D Student Department of Foods & Nutrition  
M S University of Baroda  
Research Associate BCC
- Smita Maniar  
Research Officer BCC
- Minaxi Mistry  
Field Officer BCC
- Sapna Chawhan  
Research Associate BCC
- Nisha Pandey  
Research Officer BCC
- Devika Patel  
Translator & Field Assistant BCC
- Usha Thaker  
Field Officer BCC
- I A Rangwala  
Computer Operator BCC

**For further information contact  
Executive Director  
Baroda Citizens Council (BCC)**  
Above Health Museum  
Sayaji Baug  
Vadodara 390 018 - India  
Phone Nos (0265) 793415 / 358091  
Fax No (0265) 794596  
email bcc uwb@lwbdq lwbbs net

**Dr Shubhada Kanani**  
Department of Foods & Nutrition  
M S University of Baroda  
Vadodara 390 002 - India  
Phone No (0265) 793551  
(0265) 482121 (R)  
Fax No (0265) 794951  
email s kanani@lwbdq lwbbs net

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## List Of Acronyms Used In The Study

TA

ACP	Anemia Control Program
ANC	Antenatal Care
CMO	Chief Medical Officer
FGD	Focus Group Discussion
FHS	Female Health Supervisor
FHW	Female Health Worker
FWMO	Family Welfare Medical Officer
GOG	Government of Gujarat
HSR	Health System Research
ICDS	Integrated Child Development Scheme
IDA	Iron Deficiency Anemia
IEC	Information Education Communication
IFA	Iron Folic Acid
ISP	Iron Supplementation Program
IUGR	Intra uterine growth retardation
LMO	Lady Medical Officer
MIS	Management Information System
NGO	Non-Government Organisation
QOC	Quality of Care
RCH	Reproductive and Child Health
VMC	Vadodara Municipal Corporation

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## INTRODUCTION

Nutritional anemia is a widespread disorder in the developing world affecting in particular pregnant women young children and women of reproductive age Within the developing countries the South East Asian region has the highest prevalence of anemia among all segments of the population with pregnant women being the most vulnerable group (WHO 1996)

### Prevalence of Anemia in Pregnant Women

Data available on pregnant women from South East Asian countries reveal that the prevalence of anemia ranges from 46-88% that is one-half to practically all pregnant women in this region suffer from anemia (Seshadri 1993) However marked regional differences are seen in these countries According to Gillespie (1997) nearly half the global total number of anemic women live in South Asia

In India prevalence data available for eight states and the union territory of Delhi reveal that in six of the states namely Maharashtra Gujarat Rajasthan Haryana Uttar Pradesh and Bihar 80% or more of the pregnant women are anemic Data on severe anemia (Hb <8 g/dl) from Gujarat shows a high prevalence of 21% (Seshadri 1995)

The above data reinforce a known fact that anemia is a major public health problem among pregnant women in India

### The Causes and Consequences of Anemia During Pregnancy

Several studies on blood profile of pregnant women including studies in India confirm that iron deficiency is apparently the major factor in the causation of anemia Folic acid in pregnancy seems to have a crucial role to play other than erythropoiesis its deficiency has been associated with preterm deliveries and neural tube defects (Seshadri 1993)

Causes of iron deficiency anemia (IDA) in developing countries and South East Asia as summarized by Seshadri (1993) and Gillespie (1997 1998) include

- ◆ insufficient dietary intake of iron and other nutrients (especially vitamins A and C)
- ◆ poor bioavailability of dietary iron related to a high consumption of absorption-inhibitors and a low consumption of absorption-promoters
- ◆ impaired utilization of iron due to chronic infections and blood loss due to parasitic infestations including malaria and hookworm
- ◆ blood loss due to menstruation and childbirth amplified by repeated and closely spaced pregnancies
- ◆ socio economic deprivation and gender discrimination which underlies many of the above etiological factors

Anemia especially due to iron deficiency is associated with several functional impairments It has a deleterious effect on work capacity and productivity Anemia may also predispose pregnant women to higher morbidity affecting their quality of life and the birth weight of their newborns (Prema et al 1981)

- ◆ Anemia during pregnancy may contribute to perinatal morbidity and mortality by increasing the likelihood of intrauterine growth retardation (IUGR) and preterm delivery The more severe the anemia the greater the risk that the mother will deliver a low birth weight baby due to IUGR The association between birth outcomes and anemia is strongest in early pregnancy suggesting that pre-pregnancy improvements in iron status are warranted (Gillespie 1997 MotherCare 1994)
- ◆ Perinatal mortality is nine times higher for infants born to severely anemic pregnant women as compared to infants delivered by non-anemic women (Prema 1983) In case of maternal mortality the attributable risk of mortality due to anemia in Africa and Asia is 20% plus and in India it is estimated at 16% - these figures however are seen as conservative estimates as these deaths are reported from hospitals and anemia related emergencies would be under-represented to the extent that fatigue lethargy or other constraints would prevent at risk women from reaching the hospital (Gillespie 1997)

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## **Approaches to the Control of Anemia During Pregnancy**

The effects of anemia on maternal and perinatal morbidity and mortality are largely preventable with appropriate treatment. Daily iron supplementation is the most beneficial and widely tested approach to control anemia during pregnancy.

Studies from India suggest that 120 mg elemental iron and 1 mg folic acid are the optimum daily dosages needed to prevent anemia in pregnant women. Increasing the iron level beyond 120 mg has no additional beneficial effect (Sood et al 1975, Reddaiah et al 1988).

Dietary modification is another important strategy used to decrease the incidence of nutritional deficiency though this may be difficult due to the limited purchasing power in low socio-economic groups. Another factor is the problem in persuading people to change long established dietary habits. Meeting the energy requirements by increasing the overall diet can also increase the total consumption of iron. Studies carried out by the National Institute of Nutrition in rural south India report a 25-30% increase in total iron consumption by the way of meeting the energy requirements (NIN 1974).

The food based strategies to improve dietary intake of iron and its bioavailability are feasible and can be implemented immediately within the existing systems. Based on locally available foods, their iron content and iron absorption enhancer and inhibitor content, menu patterns acceptable to people need to be developed. These menu patterns can be promoted through nutrition health education using a multi-media approach. Other approaches include iron fortification of foods like salt, sugar, bread and milk, malaria chemoprophylaxis and control and treatment of parasitic infections other than malaria, particularly hookworm infection and schistosomiasis (WHO 1996).

## **Effectiveness of Iron Supplementation Programs for Pregnant Women**

The World Bank's World Development Report 1993 has observed the micronutrient programs to be among the most cost-effective of all health interventions. Deficiencies of just vitamin A, iodine, and iron could waste as much as 5 percent of gross domestic product (GDP) but addressing them comprehensively and sustainably would cost less than 0.3% of the GDP. The annual program cost for iron supplementation to pregnant women (assuming 6 prenatal visits plus 200 iron tablets) for a population of 10,000 is estimated to be 8,000 US\$ (World Bank 1994).

Although the epidemiology of anemia, the knowledge and technical means of preventing and controlling it are well known, very few pregnancy anemia prophylaxis programs successfully apply this knowledge to the development and implementation of comprehensive control strategies in developing countries. Despite the proven efficacy of small scale field trials wherein iron supplements have been biologically effective in raising iron status of beneficiaries proportionate to the dose and its duration, few large scale programs have been found to be operationally effective (Gillespie 1997).

In South East Asia, the national level programs to combat anemia consist chiefly of therapeutic supplementation with iron and folic acid in six of the eleven countries in this region. The iron distribution is linked with antenatal care (ANC) services, the utilization of which is low (20-35%) in Thailand, Myanmar and India. In all countries, a major reason for non-attendance at the ANC centers appears to be lack of awareness of the benefits of iron tablets followed by lack of time and long distances from home to the centre. None of the countries has facilities for screening for anemia and hence the supplements are expected to be delivered to all pregnant women. The delivery systems appear to be inadequate in most of the countries along with poor supplies of iron tablets and lack of effective ways of monitoring for compliance (Seshadri 1993).



## Policy on the Control of Nutritional Anemia National Nutritional Anemia Control Program in India

The National Nutritional Anemia Control Program in India which is in existence since 1970 aims at significantly decreasing the prevalence and incidence of anemia in women in the reproductive age group especially pregnant and lactating women and preschool children. The policy on Control of Nutritional Anemia emphasizes the following strategies

- ◆ Promotion of regular consumption of foods rich in iron
- ◆ Provisions of iron and folate supplements in the form of tablets (folifer tablets) to the high risk groups
- ◆ Identification and treatment of severely anemic cases

The evaluation of this program has revealed several lacunae in its operational aspects such as low coverage (pregnant women only 19%) irregular and inadequate supply and poor compliance with iron tablet consumption (ICMR 1989)

- ◆ A very poor coverage (19.4%) of the iron supplements in the 5779 pregnant women surveyed was found due to a centralized tablet delivery system and negligible number of home visits by the health care providers
- ◆ A similar finding was seen in case of compliance with the tablets as only 11.7% of the pregnant women consumed 90 tablets during pregnancy
- ◆ Besides inadequate supply of tablets insufficient follow up and counselling of pregnant women were the highlights of this evaluation
- ◆ Monitoring of compliance by the health functionaries was poor as only 35% of the pregnant women were monitored

According to the Multi Indicator Cluster Survey (Gandotra et al 1997) carried out in urban slums and rural areas of Gujarat although 76.79% pregnant women did receive IFA supplements all women did not receive the recommended dose of 100 tablets and several women consumed inadequate doses as seen below

		Urban slums (%)	Rural areas (%)
Received	51-100 tablets	42	38
	≤ 50 tablets	34	41
Consumed	51-100 tablets	32	32
	≤ 50 tablets	43	47

Research evidence from developing countries clearly points out to several drawbacks in the health system as being the primary factors responsible for poor quality of care in the anemia control program implemented by the Government. For example a review of literature by Galloway and McGuire (1994) and studies in India (Khanna and Kanani 1995 ICMR 1989) highlight the factors influencing beneficiary compliance and poor quality of care in iron supplementation programs which are summarized below

### ◆ Health service provider related factors

A key factor contributing to the poor quality of care (QOC) is the low priority inadequate political commitment and financial support being given to Anemia Control / Iron Supplementation Programs (ISP) at the government level. As a result health functionaries and their supervisors receive inadequate training on anemia and on the field level implementation of the Anemia Control Program (ACP). Iron tablet supplies are either inadequate or unevenly distributed. Health functionaries spend more time on other programs like Family Planning and Immunization. Monitoring and

supervision is infrequent and cursory especially with respect to compliance with iron supplementation Further there is insufficient IEC material available on anemia and on the benefits of iron supplementation Female Health Workers (FHWs) also lack counselling skills to motivate and support women to complete the course of iron supplementation

◆ **Client related factors**

Anthropological research data reveal that several pregnant women perceive symptoms of anemia as an inevitable part of pregnancy and believe that the symptoms will disappear after delivery Therefore they usually do not seek treatment for anemia unless the symptoms are severe or accompanied by other illnesses like malaria Women also may misunderstand instructions and get frustrated about the frequency and number of tablets to be consumed They may discontinue taking the tablets due to several reasons such as side effects fear of having big babies a belief that tablets are hot irregular antenatal visits because of long distances from home and absence of transport facilities They also lack family support with the mother-in-law often disapproving the intake of iron tablets by the woman

## **Management of Iron Supplementation Programs**

The discrepancy between the promises and achievements of the micronutrient deficiency control programs results primarily from inadequate management The management related problems according to the World Bank (1980) are several such as improper or absence of transport facilities lack of personnel and inventory management lack of continuing education for the grassroots level health service providers and inadequately executed administrative and technical supervision

A review of the iron supplementation programs in various countries has shown that control of iron deficiency was felt by many health care providers to be peripheral in the crowded agenda of activities of a low priority (ACC/SCN 1991a) Thus millions of pregnant women continue to be anemic especially in South Asia inspite of iron supplementation programs in effect since decades

ACC/SCN (1991b) believes that weak training of health care providers is an important factor underlying ineffectiveness of many nutrition programs throughout the world and recommends that additional specialized training of health and other service delivery personnel is required in the prevention and treatment of nutritional anemia

Another problem faced by the health care providers is that they are not clear about what exactly they are expected to do In short they lack knowledge regarding their specific job functions which are not properly stated by the higher authorities Often there is a very thin line between the job descriptions of health workers and their supervisors - for example Female Health Workers (FHWs) and Female Health Supervisors (FHSS) adding to the confusion regarding who is to do what

Inadequate supervision is frequently reported as a major factor underlying ineffectiveness of nutrition programs in the world Lack of understanding the value of supportive supervision and lack of necessary skills in building and maintaining workers' motivation have been identified as some of the major management problems in India at the district level (NIHFW 1984) Therefore it is necessary to change the limited and sporadic nature of supervision to a more desired level for the programs to be successful

In India the multiplicity of records and reports and their maintenance and lack of proper and timely feedback from the superiors have been reported as problems in the Management Information System (MIS) operating in the health sector This along with the targets given for covering a set number of beneficiaries creates a tendency in the health care providers to manipulate the numbers (NIHFW 1984)

One reason for poor coverage is that the beneficiaries at the receiving end of the program are not made aware of its existence and importance in their lives so as to create a demand for the specific services Effective health education using an Information-Education-Communication (IEC) strategy can make individuals and communities aware of the menu of health services available to them and enable them to choose the appropriate ones However despite being a component of India's Family Welfare Program for the past two decades IEC

remains largely ineffective and focuses mainly on family planning and immunization neglecting important aspects of maternal and child health nutrition. There is a dearth of material for pregnant women to educate them regarding the importance of antenatal care services and anemia control.

All the above factors together compromise the quality of care. There is a growing concern all over the world to ensure that the quality of health care is as high as it can- and should -be. This applies just as much at national level as it does at the level of the health worker. The health worker's aim is to provide the quality of health care that results in the highest attainable level of health in a given situation. This also holds true in the case of maternal health and safe motherhood programs.

Even in the recently initiated Reproductive and Child Health (RCH) programs, the government unfortunately has not given due attention to controlling anemia in women especially with respect to quality of care. Quality of care (QOC) as a continuing process should be built into all services that provide health care. A more holistic systems approach to health care will help improve and maintain QOC.

### HEALTH SYSTEMS RESEARCH (HSR) FOR ANEMIA CONTROL IN PREGNANCY

Health Systems Research (HSR) involves the collection of information about services, programs or systems with a view to assessing the need for them, examining their design and operation, and evaluating their efficiency, effectiveness, and impact. It is part of the process of service development, aiming primarily to improve services or their components (Omran 1990). Basically HSR is concerned with improving the health of a community by enhancing the efficiency and effectiveness of the health system as an integral part of the overall process of socio-economic development.

#### HSR to Improve the Anemia Control Program (ACP)

Three basic components of HSR\* are

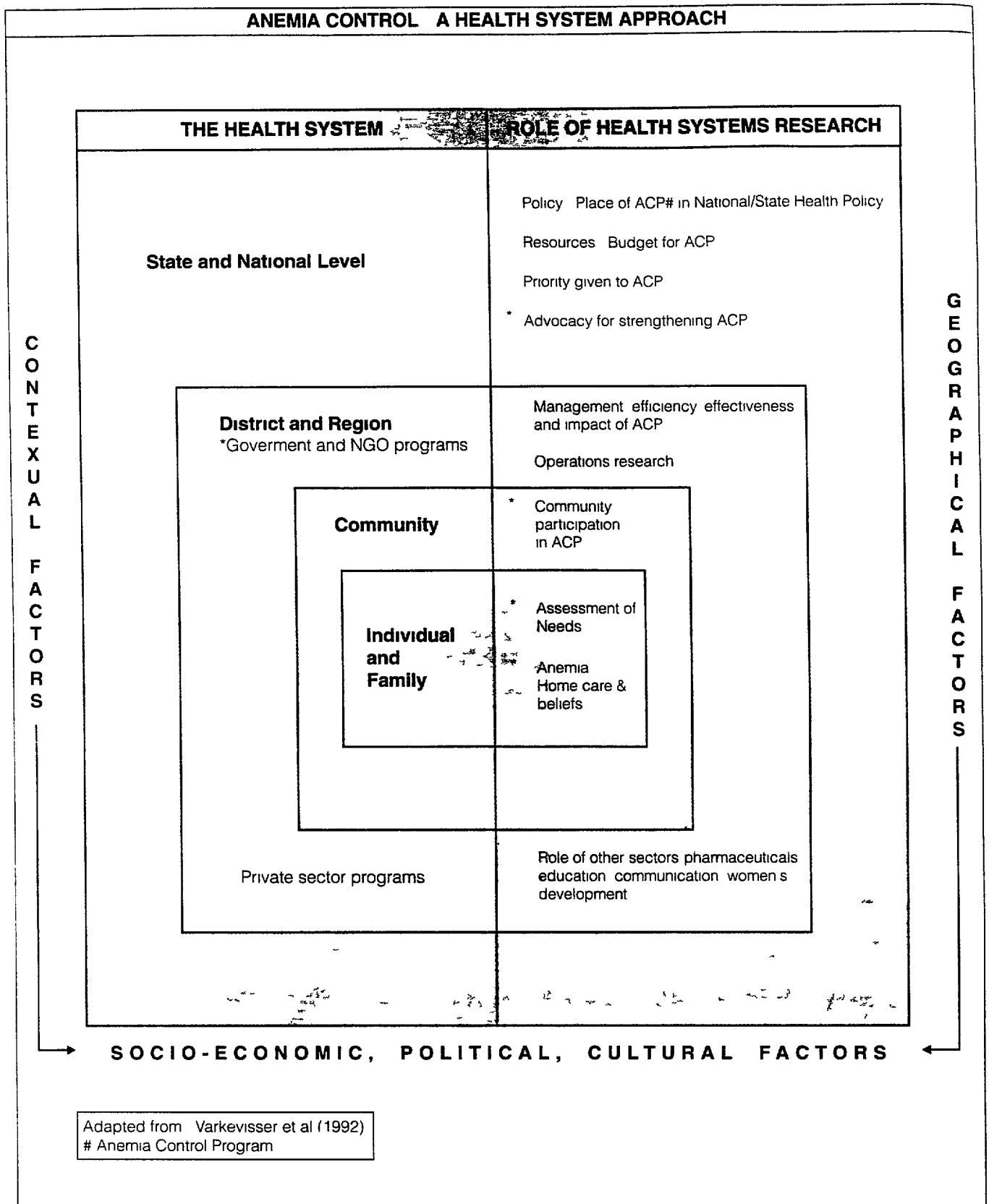
- ◆ **A set of cultural beliefs about health and illness forming the basis for health seeking and promoting behaviour.** In the context of anemia, qualitative research has revealed that women may not seek treatment for anemia as they do not see it as a disorder but as a part of reproductive life, not worthy of attention. Besides this, various other cultural beliefs may obstruct a woman's health seeking behaviour.
- ◆ **The institutional arrangements within which health related behaviour occurs.** With respect to ACP, the institutions are the women, their families in the community and the government system. The type and quality of these networks will influence women's interactions with each of these as well as their health. The quality of government programs (especially their communication strategy) play an important role here as the women and the community are not much aware of the importance of diet and iron tablets during pregnancy.
- ◆ **The socio-economic/political/physical context in which the health behaviour occurs and the health system in which the ACP operates.** For example, lack of political will and low priority accorded to anemia control may result in inadequate budgets being allotted for ACPs by the government, and poor quality of care.

Figure 1 conceptualizes a health system in the context of anemia control.

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\*Source: IDRC/WHO (1991)

Figure 1



## The Scenario In Urban Vadodara

Studies carried out in the Department of Foods and Nutrition M S University of Baroda in urban slums of Vadodara have thrown light on factors affecting compliance with iron supplements by pregnant women and the shortcomings of the delivery system of iron tablets as well as effectiveness of selected strategies to improve compliance. What follows is a brief description of these studies.

In an evaluation of the nutritional anemia prophylaxis program in urban Vadodara (NRTC 1990) it was found that the performance of the program was far from satisfactory as one-third of the pregnant and lactating women from the slums covered by the Family Welfare Centres (FWCs) had not received the supplement at all. Only a small percentage of women receiving the supplement from FWCs had received the full course (25%). The receipt of the supplements by pregnant women from the slums covered by ICDS centres was better than those covered by the FWCs but the percentage receiving the full course of the supplement was very small (17%).

In another study carried out in the Department of Foods and Nutrition M S University of Baroda direct observations of the process of implementation showed that although distribution of iron supplements was the responsibility of the FHWs in practice they handed over the tablets to the anganwadi workers for distribution. Record maintenance of micronutrient programs was poor as the FHWs did not pay much attention to these programs (Kanani and Patel 1994).

In a study by Seshadri et al (1993) among 100 pregnant women in Vadodara slums impact of two modes of delivery of iron tablets were tested to overcome the shortcomings of the present delivery system of the government. One consisted of linking the distribution of IFA tablets with the monthly immunization of mothers and children wherein the pregnant women would be asked to collect their monthly supply of IFA from the FHW during her immunization visit and continue this till delivery. The second mode consisted of home-based delivery of IFA by the project research assistant on a monthly basis along with motivational counselling both by the research assistant and the anganwadi worker. Packaging of tablets was improved by packing a month's supply in inexpensive autoseal polythene sachets.

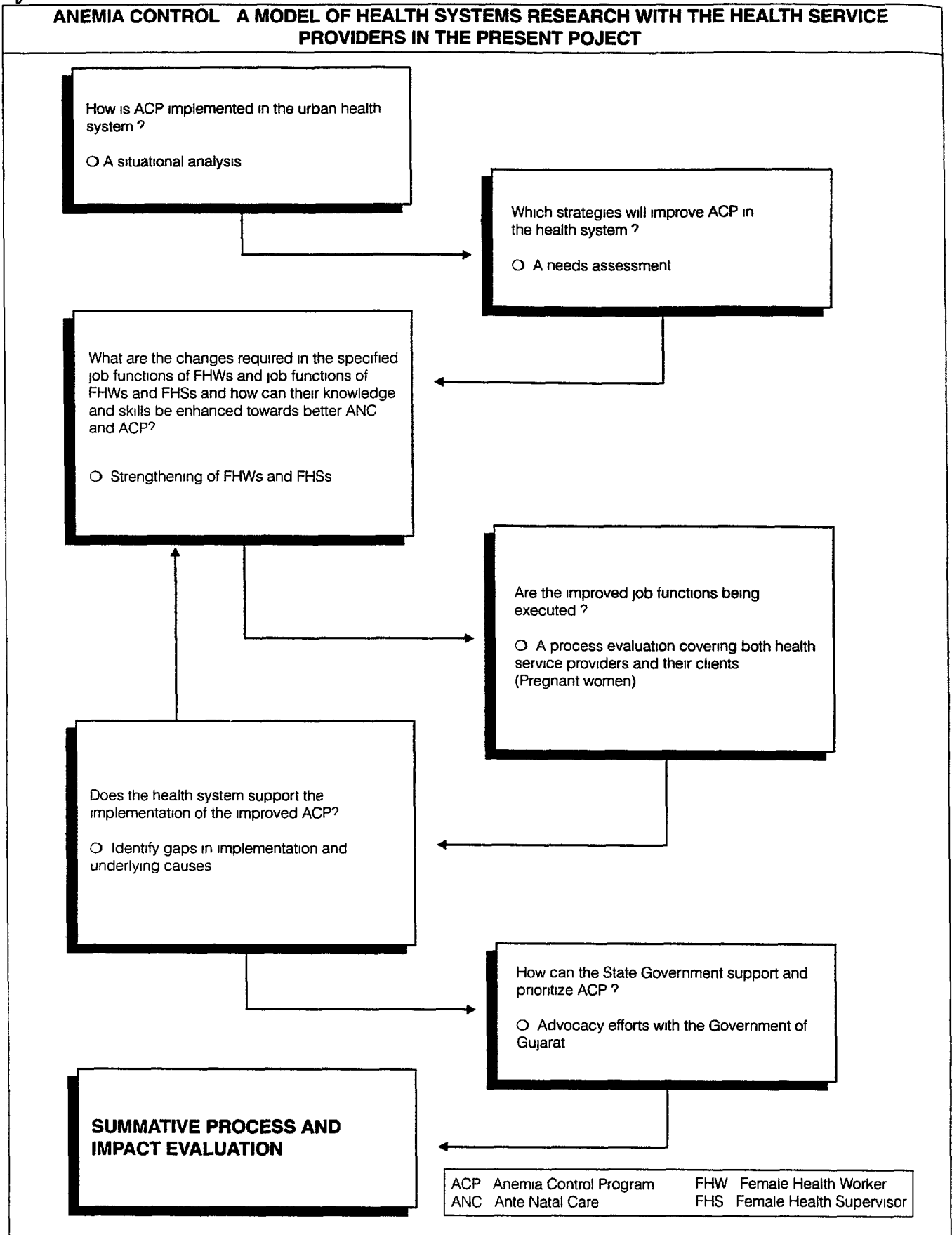
Major Findings indicated that the IFA tablet delivery system of the Corporation had certain limitations such as no specific/fixed day for distribution, lack of record for the number of tablets distributed or consumed, inadequate follow up and counselling which resulted in non-compliance with tablet collection and consumption. Factors affecting compliance were varied and were related in part to the attitudes women had towards the IFA tablets.

As regards the interventions, immunization linked IFA distribution made the distribution more organized, compliance (completion of predetermined dose level) increased from 35% to 44% and several women reported positive beneficial effects on their health. However, the constraints were that the FHW preoccupied with immunization could not take responsibility for tablet distribution (which was done by the anganwadi worker or research assistant). Counselling was not given and a sizeable proportion of women did not turn up at the center to collect the tablets.

The second intervention- home delivery of tablets by the research assistant coupled with improved packaging of tablets and counselling of mothers- had a much more significant impact wherein compliance levels improved from 35% to 65%.

**Summing up** From the research done in India and in this region it is evident that implementation of the anemia control program is far from satisfactory and that varied reasons adversely affect compliance of pregnant women to IFA supplementation. While several interventions have highlighted simple and workable strategies to improve the situation, these interventions need to be anchored firmly as an integral part of the government health system in order to be long term sustainable strategies. In contrast to externally driven or project driven strategies, strategies implemented by government health personnel themselves with minimal external inputs or monitoring have a chance of continuation though with variable impact. Thus in the present study our central strategy was a health system research approach which has been described earlier and is further elaborated in the context of this project in the next section with external inputs provided only to the extent of strengthening the capacity of ongoing activities carried out by the functionaries themselves. Our subsequent activities focused primarily on conducting a process evaluation over time of the actual implementation (or non implementation) of the strengthened activities by the functionaries and supervisors themselves. We reflected on the reasons underlying the satisfactory or unsatisfactory performance of improved strategies and made efforts to take corrective measures along the way. In each step the Vadodara Municipal Corporation's

Figure 2



Health Department in particular the Family Welfare Medical Officer was our partner in assessing and correcting drawbacks in the health system which hindered the ACP. She saw our approach of contextualizing ACP within the system in which functionaries operate as relevant to the Corporation's programs. In fact, all directives to the field functionaries came from her as official instructions.

This iterative process of the project is depicted in Figure 2.

### **Broad Objectives of the Project**

- (1) To conduct a situational analysis of the Anemia Control Program for urban poor pregnant women in the Vadodara Municipal Corporation.
- (2) To improve the implementation of the antenatal care services especially anemia control in pregnant women by the health functionaries (LMOs, LHV's and FHWs) of two selected Health Posts in the Vadodara Municipal Corporation.
- (3) To evaluate the effectiveness of different program strategies for improving antenatal care and anemia control i.e. training, procurement and distribution of iron tablets, production of IEC (Information Education Communication) material and its use by FHWs, monitoring and supervision system.
- (4) To assess the impact of the enhanced antenatal care and anemia control on prevalence of anemia, beliefs/practices regarding anemia and iron supplementation among pregnant women and on the birth weight of newborns.

### **Non-Government Organization (NGO)-Government Organization (GO)-University Triad**

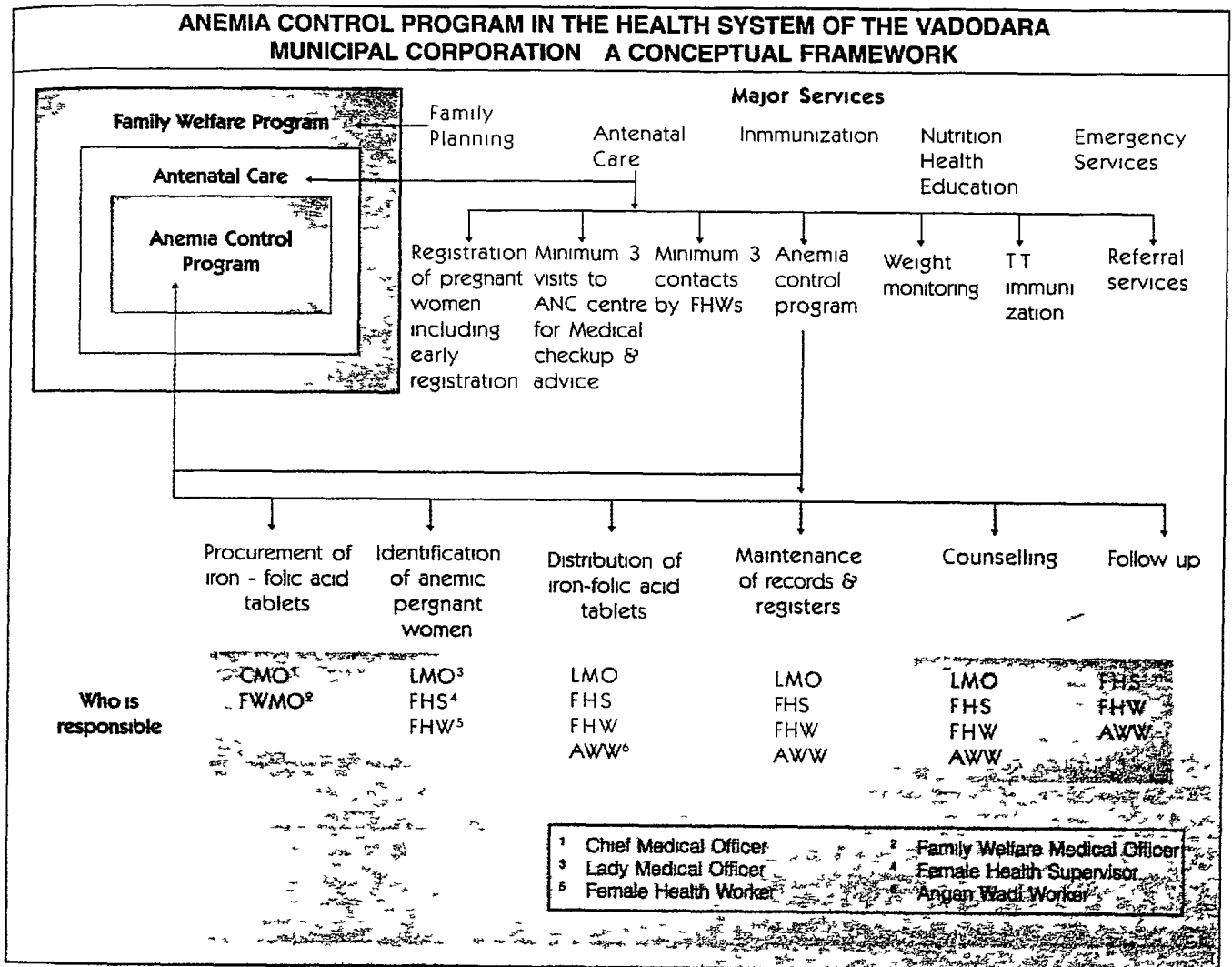
This project was implemented by a voluntary organization (Baroda Citizens Council) with funding support from John Snow Inc /MotherCare. The government sector represented by the Vadodara Municipal Corporation's Health Department was an active partner throughout. Technical support was provided by the Department of Foods and Nutrition of M.S. University of Baroda whose staff and post graduate students played a key role in conceptualizing and implementing specific components of the project. We believe that such a model of a mutually synergistic relationship between a program based organization on one hand and academic institution on the other should find wider applications in other settings.

# METHODOLOGY

As stated earlier the major objective of this project was to improve the implementation of antenatal care services especially anemia control in pregnant women in two Health Posts of the Vadodara Municipal Corporation

Figure 3 conceptually explains the position of anemia control in the broad framework of the Family Welfare Program in the Vadodara Municipal Corporation based on information given to us by the health officials. The Family Welfare Program of the Corporation provides services such as family planning MCH services antenatal care immunization nutrition health education and emergency services (services provided during epidemics and natural calamities like floods). Out of these anemia control program forms a part of the antenatal care services and includes procurement of IFA tablets identification of anemic pregnant women distribution of IFA tablets maintenance of records and registers regarding these services and counselling to and follow up with pregnant women for better coverage and compliance. The CMO and FWMO of the corporation are responsible for procuring the IFA tablets from the Central Government. The health functionaries of the Health Posts (LMOs FHSs and FHWs) identify anemic pregnant women distribute IFA tablets to them and maintain records. The FHSs and FHWs as well as the AWWs (health functionaries of ICDS) are expected to do follow up through home visits. In the present project the focus on Anemia Control Program (ACP) was within the context of antenatal care (ANC) services offered by the Vadodara municipal Corporation.

Figure 3





## Research Setting and Sample Selection

In Vadodara delivery system for the iron supplements to pregnant women is through the Family Welfare Centres and Health Posts of the Vadodara Municipal Corporation (VMC). The Corporation runs 9 Health Posts under its Urban Revamping Scheme which provide health care services (MCH and Family Planning) to its population. Each Health Post covers approximately 50 000 population comprising all income groups residing in slums and societies. The staff of a Health Post includes one Lady Medical Officer (LMO), one Female Health Supervisor (FHS), four Female Health Workers (FHWs), one vaccinator, one accountant-cum-clerk and a helper.

Seven of the nine Health Posts are fully equipped with regard to health personnel and infrastructure facilities (Appendix 1). The remaining two posts have two health auxiliaries each and cater to a smaller population. The Health Posts are expected to improve the Family Welfare Program of the Government of India, giving equal emphasis to Maternal and Child Health Care Services (immunization, antenatal care, postnatal care, health education) and Family Planning (contraceptive advice and services). The Anemia Control Program implementation through the Health Posts is similar to the national program, i.e. 100 mg elemental iron + 0.5 mg folic acid tablets to be given daily to pregnant and lactating women for 100 days. The iron folic acid (IFA) tablets are expected to be distributed in sachets of 25 each at the Health Posts as well as through home visits by the FHWs, the field level functionaries of the Health Posts. After preliminary discussions with the corporation officials, 2 Health Posts, OP and NY, were purposively selected for the study. Both Health Posts catered to deprived groups in about 25 to 40 slums each. Most of the slums have a similar socio-economic composition, having a mix of ethnic groups of varying income levels.

Though the city slums have predominantly low income families, a small proportion (approximately 10%) are relatively more affluent and can afford health care from private practitioners. Both the Health Posts also had several societies under their jurisdiction, in which middle to high income groups lived. In practice, however, these groups were very infrequently provided with government health care services as they preferred paid and better quality care from private doctors or hospitals. The estimated population covered by the Health Posts under study is given below.

			Slums	Housing societies
Health Post OP*	*	Population	40 000	10 000
	*	Families	8 000	2 000
Health Post NY*	*	Population	41 000	10 000
	*	Families	8 200	2 000

(Source: Personal communication with the Medical Officers)

## Environmental Sanitation and Health Care Services

Half of the pregnant women enrolled in the study lived in semi-pucca houses with brick walls and a tin roof, whereas comparatively better off women lived in concrete houses. Others lived in kutcha houses with mud walls or huts. A majority of the families got drinking water from municipal taps and community hand-pumps. The number of households with individual toilets were three-fourth of the total. Nearly 80% of the families were rated fair to good for sanitation of the houses and surroundings based on the cleanliness of house, absence of flies and insects and ways of garbage disposal. Health care services were available through Government health centres, hospitals, health centres run by NGOs and private practitioners in the vicinity of the slums.

\* Names are abbreviated to protect their identity

## Study Design

### Health Service Provider Group

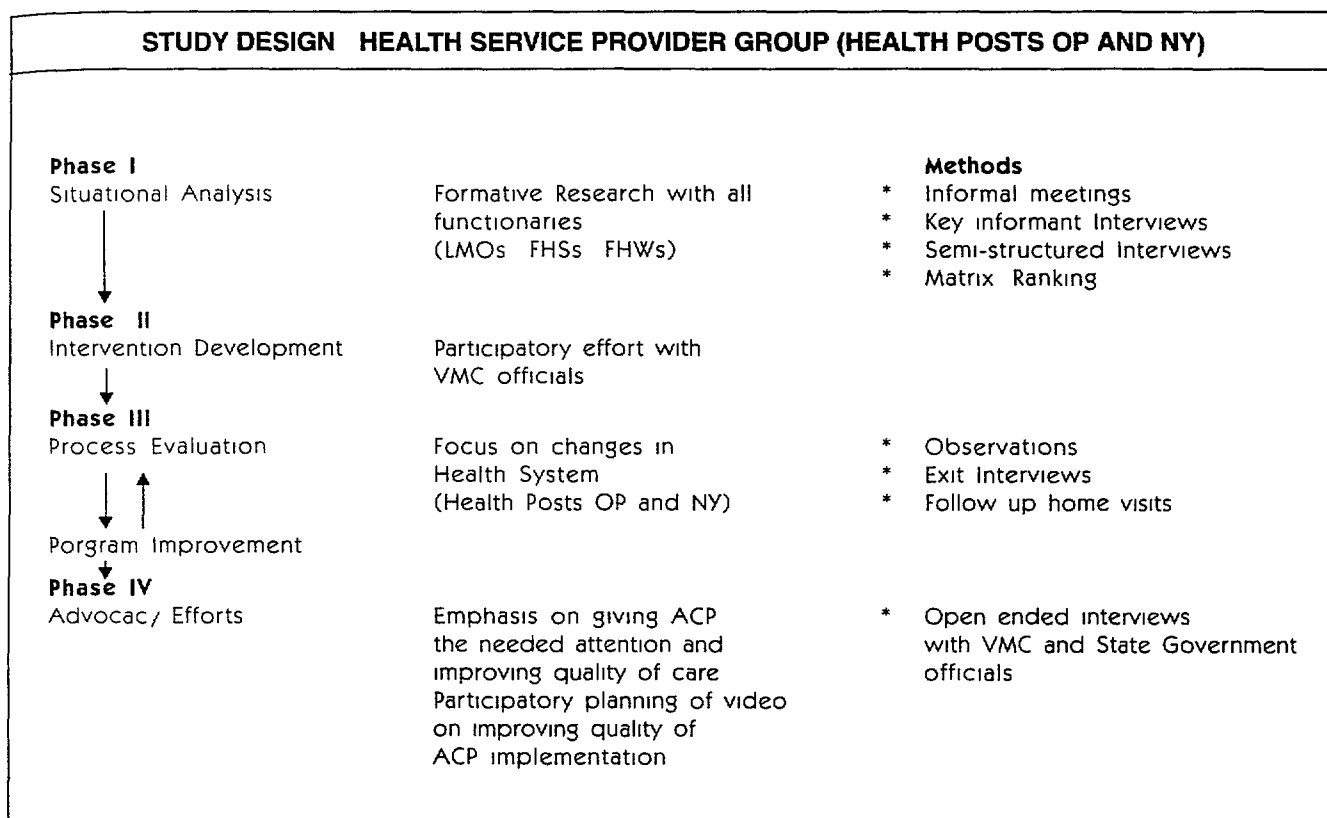
The initial phase of the project consisted of a situational analysis in which formative research was carried out with functionaries of the Corporation. Functionaries of all the 9 Health Posts of the Corporation took part in selected aspects of formative research.

Phase II comprised the development and implementation of selected strategies with the participation of VMC's health officials.

The third phase was an iterative process alternating process evaluation and program improvement which focused on the changes occurring in the health system.

In Phase IV advocacy efforts were undertaken with the Government of Gujarat health officials which emphasized on the need for giving ACP much needed attention and improving the quality of its implementation. Please see Figure 4 for the phases of the project and methods used in various phases.

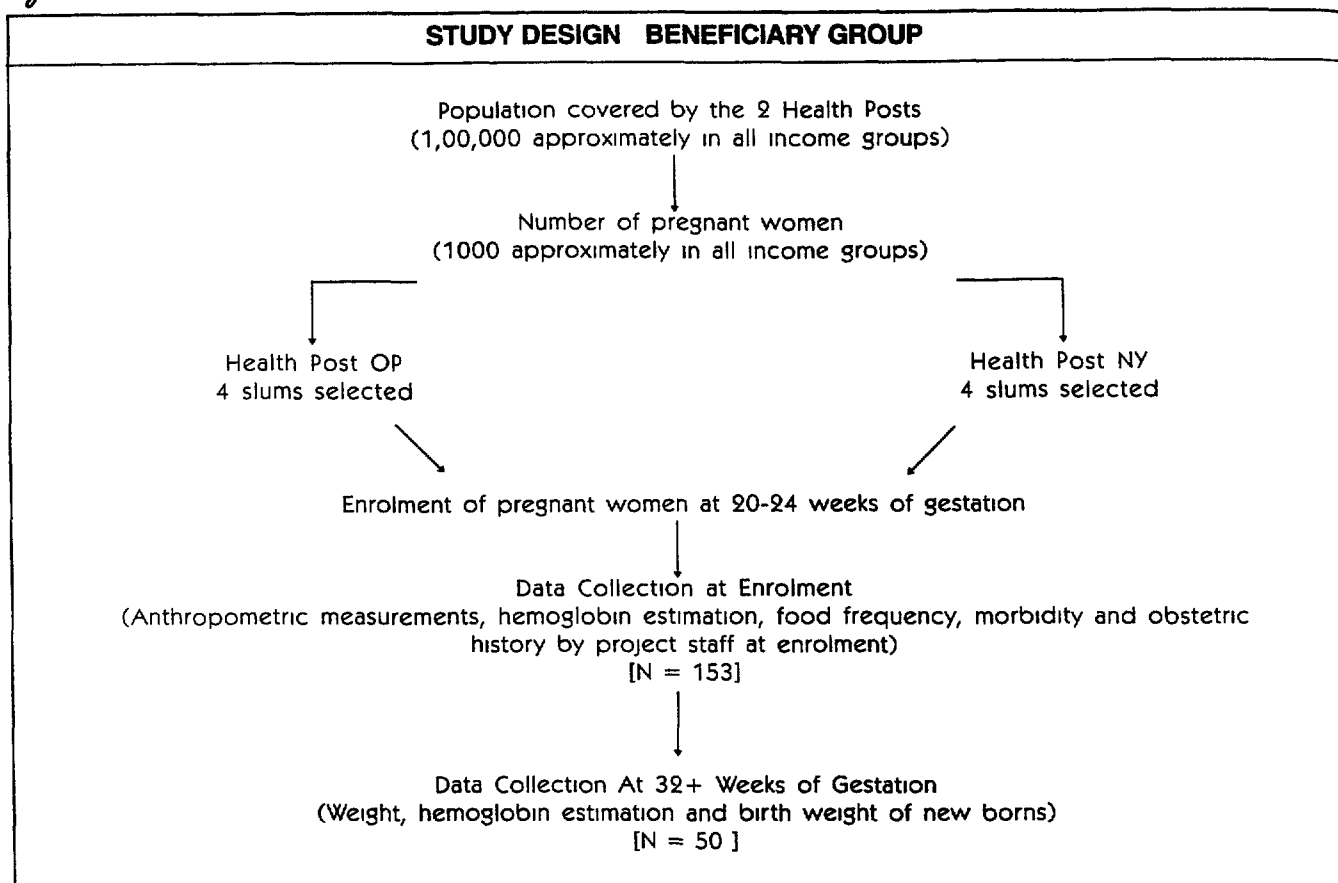
Figure 4



### Beneficiary Group

As shown in Figure 5, the total population covered by the 2 Health Posts was approximately 1,00,000 covering all income groups with about 1000 pregnant women at a given point of time (approximately 1% of population). From these 2 Health Posts, 8 representative slums were purposively selected and all the pregnant women residing in the slums who were at 20-24 weeks of gestation were enrolled in the study. Data on anthropometry (height and weight), hemoglobin, obstetric history, morbidity, and frequency of consumption of iron and vitamin C rich foods were collected. Weight and hemoglobin level measurements were repeated after 32 weeks of gestation. Out of the 153 women, 50 women were randomly selected and followed up till delivery.

Figure 5



## Methods Used for Data Collection

The formative research to arrive at a situational analysis of Anemia Control Program comprised a combination of qualitative and quantitative research methods as explained in Tables 1A and 2. The qualitative methods included meetings with health officials, scrutiny of IEC material and records maintained for iron tablets, semi-structured interviews, matrix ranking exercise, free listing and seasonality diagramming exercises, and focus group discussions as described below.

- ◆ Several meetings were held with the Corporation's Chief Medical Officer, Family Welfare Medical Officer and Lady Medical Officers of selected Health Posts over a period of one year regarding the current situation of ACP in VMC and the priority given to it as compared to other antenatal care services.
- ◆ Secondary data review included a scrutiny of the IEC material at the Family Welfare Bureau of the VMC to see the existing material on anemia, and for examining records at the 2 Health Posts in order to check the type of information noted on IFA tablets distributed to pregnant women.
- ◆ Key informant interviews were conducted with FWMO and LMOs, time and again both during the situational analysis and later on for process evaluation since the intervention was based on a participatory approach.
- ◆ Matrix Ranking exercises were carried out with 3 groups of Female Health Workers to obtain information about regular availability of various antenatal care services, utilization of these services by the women beneficiaries, and beneficial effects of these services on the women beneficiaries.
- ◆ Semi-structured interviews were conducted with LMOs, FHSs and FHWs of the Corporation to gain an understanding of their perceptions of common health problems during pregnancy, anemia and iron supplementation, antenatal care services, and nutrition education required during pregnancy. The pregnant women and their family members (mothers-in-law/husbands) were contacted for semi-structured interviews to elicit data on their awareness of antenatal care services including iron supplementation, and the women's compliance related behaviours with iron tablet consumption. Interview was also conducted with a nursing tutor to determine the amount and type of training given to the FHWs and FHSs regarding nutrition, especially regarding iron deficiency anemia.

Table 1A

QUALITATIVE METHODS USED FOR FORMATIVE RESEARCH IN THE STUDY			
Method	Informants	Number	Information Sought
Informal Meetings	Chief Medical Officer (CMO) Family Welfare Medical Officer (FWMO)	1 1	Position of ACP in the FWP Priority given to ACP
Key Informant Interviews	Chief Medical Officer (CMO) Family Welfare Officer (FWO) Lady Medical Officers (LMOs)	1 1 2	Position of ACP in the FWP Implementation of ANC Services especially ACP Priority given to anemia during the pregnancy
Matrix Ranking	Female Health Workers (FHWs)	3 groups	Priority given to ACP
Semi structured Interviews	Female Health Workers (FHWs) Female Health Supervisors (FHWs) Lady Medical Officers (LMOs) Pregnant Women Family Members Pregnant Women  Nursing Tutor	25 7 7 40 40 36  1	Perceptions regarding anemia and importance of ACP  Behaviours regarding procurement and consumption of IFA tablets  Training imparted to FHWs especially with respect to anemia
Seasonality Diagramming	Pregnant Women	3 groups	Seasonal availability & consumption of Iron and Vitamin C rich foods
Focus Group Discussion	Pregnant Women	2 groups	Perceptions regarding anemia
Food Frequency Method	Pregnant Women	80	Seasonal availability & consumption of Iron and Vitamin C rich foods

- ◆ Free lists and seasonality diagrams with pregnant and lactating women were conducted twice to determine the foods which increase the strength of blood make blood red and healthy during pregnancy as perceived by women in slum communities to obtain local names of these foods which are commonly consumed during pregnancy and to get information regarding seasonal availability and consumption of these foods. These exercises were conducted at ICDS anganwadis where the pregnant and lactating women came to collect supplementary foods
- ◆ The method used for assessing their frequency of consumption of iron and vitamin C rich foods was the food frequency method
- ◆ Three focus group discussions (FGDs) were conducted with groups of 8-10 pregnant women each to gain information regarding their perceptions of common health problems during pregnancy anemia and iron supplementation their awareness of various antenatal care services and changes in their diet and work pattern during pregnancy

Appendix 2 gives the question guides for the different qualitative methods mentioned above

The quantitative methods used in the study included measurements of height and weight (anthropometry) of the pregnant women for assessment of their nutritional status. Cyanmethemoglobin method was used to assess the hemoglobin status of the pregnant women. Data on socio-economic status, morbidity, obstetric history and delivery record were collected using structured questionnaires which are given in Appendix 3.

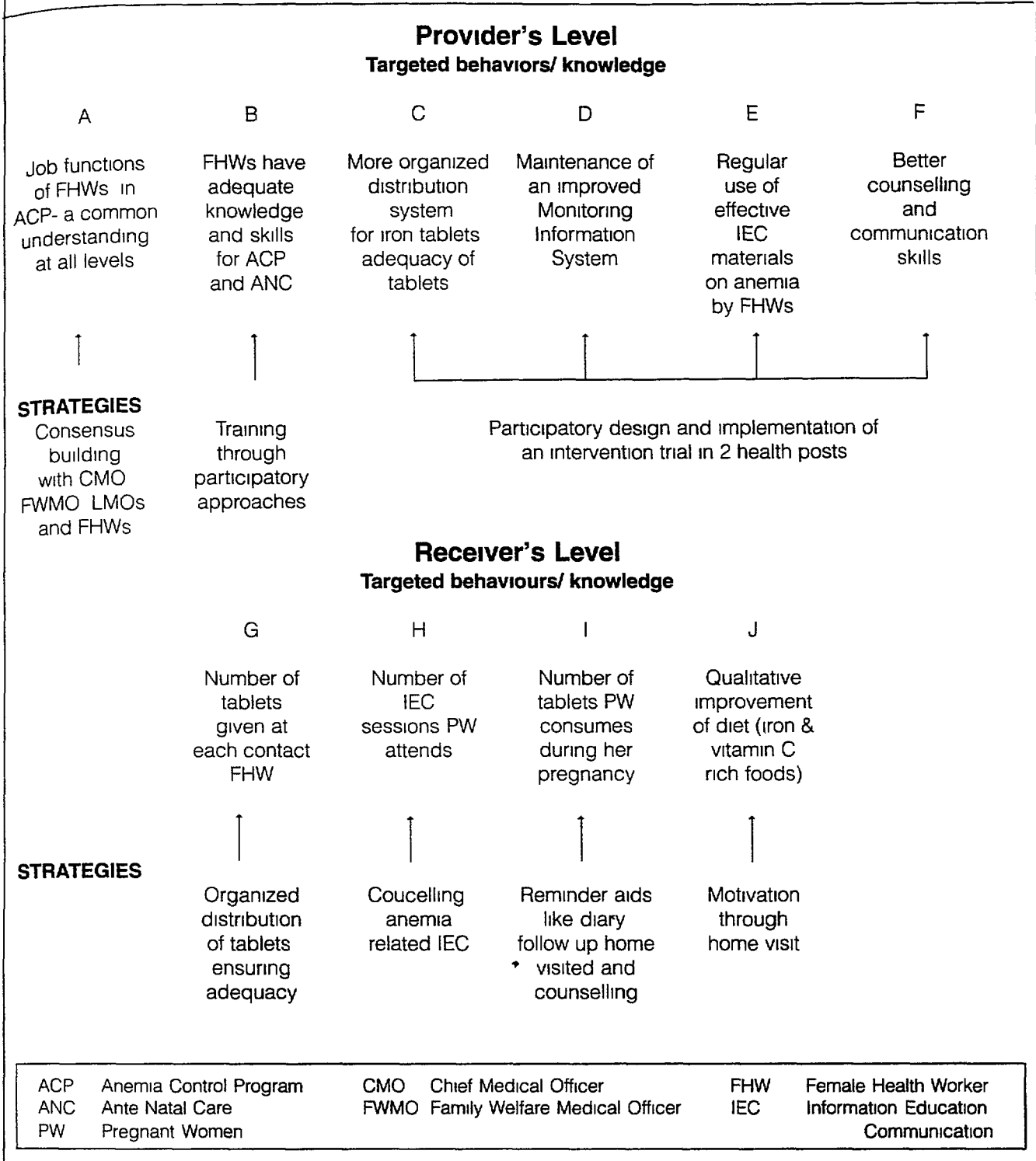
*Table 2*

<b>QUANTITATIVE METHODS USED IN THE STUDY</b>			
<b>Information Sought</b>	<b>Informants</b>	<b>Number</b>	<b>Method</b>
Socio economic status assessment	Pregnant Women	153	Structured questionnaires
Obstetric History	Pregnant Women	70	Structured questionnaires
Nutritional Status assessment			
◆ Height	Pregnant Women	153	Standard method
◆ Weight	Pregnant Women	153	Standard method
◆ BMI	Pregnant Women	153	Standard method
◆ Hemoglobin	Pregnant Women	153	Cyanmethemoglobin method
Morbidities experienced	Pregnant Women	80	Structured questionnaires
Delivery record and birth weight of new borns	Pregnant Women	70	Structured questionnaires

The intervention design was based on the principle of behaviour change which is illustrated in Figure 6. Each box indicates a specific behaviour or knowledge area which we attempted to change in a positive direction. The targeted behaviours at the provider's level included job functions of the FHWs with regard to the ACP, their knowledge and skills for ACP and ANC services, system of distributing IFA tablets, Management Information System (MIS) use of IEC materials on anemia by the FHWs, and their counselling and communication skills. The strategies conceptually chosen for improving these behaviours were consensus building with Corporation's health department employees, training of FHSs and FHWs through participatory approaches, and participatory design and implementation of an intervention trial in the selected Health Posts. At the receiver's level, the selected behaviours were number of tablets received by each woman at one contact with an FHW, number of IEC sessions attended by her, number of tablets consumed by her during pregnancy, and consumption of iron and vitamin C rich foods. The major strategies included organized tablet distribution, reminders for taking tablets, and motivation through home visits. Anemia related counselling by FHWs using IEC interventions was also carried out both at Health Service Providers' level and the Clients' level as mentioned below.

Figure 6

**STRENGTHENING CAPACITY OF HEALTH WORKERS BASED ON PRINCIPLE OF BEHAVIOR CHANGE**



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## METHODS OF PROCESS EVALUATION OF THE INTERVENTION STRATEGIES

The methods used for process evaluation are given in Table 1b

### Health Service Provider Group

- ◆ Follow up visits to the two Health Posts were made on a weekly basis throughout the year of February 1997 to February 1998 to assess whether the modified strategies worked towards improving the ACP within the context of their overall responsibilities and the system in which the health service providers worked
- ◆ Direct Observations were conducted in two cycles of one week at each Health Post to assess the time and activity pattern of the health workers and their supervisors and especially to determine whether adequate attention was given to the Anemia Control Program
- ◆ Supervision and monitoring done by the Lady Medical Officers and health officials of the Bureau was gauged through regularly checking the records and registers maintained by the FHWs and FHSs at the health posts (Appendix 4) and observations of the monthly review meetings held at the Family Welfare Bureau

Table 1B

QUALITATIVE METHODS USED FOR PROCESS EVALUATION OF THE INTERVENTION STRATEGIES			
Method	Informants	Number	Information Sought
Follow up visits	<ul style="list-style-type: none"> <li>◆ Health Service Providers at the Health Posts</li> <li>◆ Pregnant Women in the slums</li> </ul>	—	Field level implementation of ACP as part of ANC services Time spent Quality of Care
Direct Observations	<ul style="list-style-type: none"> <li>◆ Health Service Providers on Clinic Days</li> <li>◆ Health Service Providers at the Health Posts</li> </ul>	6 days 2 weeks	Field level implementation of ACP as part of ANC services Time spent Quality of Care
Exit Interviews	<ul style="list-style-type: none"> <li>◆ Pregnant and Lactating Women at the Health Posts</li> </ul>	148	Utilization of ANC services

### Beneficiary Group

- ◆ Follow up visits were made to the houses of the pregnant women enrolled from the selected slums in order to obtain the data on nutritional status (Hemoglobin and weight gain) and source of procurement and compliance with iron supplementation
- ◆ Exit interviews were conducted with 148 pregnant and lactating women who visited the MCH clinics at the Health Posts from where they were supposed to receive antenatal care especially iron supplementation. The aim was to elicit information from the women regarding the quality of their recent interaction with the health worker especially regarding counselling received if any. Initially it was decided to interview only the pregnant women but soon it was realized that only a few pregnant women visited the clinics hence it was decided to interview the lactating women (with infants below one year of age) to determine whether they had received antenatal care especially iron tablets when they were pregnant. The question guide for the exit interviews is given in Appendix 5

## DATA MANAGEMENT AND ANALYSIS

### Qualitative Data

The raw field notes collected through various qualitative methods were taken down in detail in a dialogue-script form by investigators familiar with the local language Gujarati. The expansion of these notes and simultaneous translation into English was done keeping the English translation as close as possible to the Gujarati original. This was possible because the project staff were familiar with both English and Gujarati. Significant verbatim quotes were retained in Gujarati language with English equivalent given in parentheses. The expanded notes were then entered in a word processing software package Word Perfect 6.0 and filed according to the methods giving a .txt extension to all the file names. Files were later coded according to a code list already prepared which was modified if necessary as data coding progressed.

In case of the semi-structured interviews which formed a major portion of the qualitative data, the questions were formulated according to themes and were given thematic codes after English translation. The codes were created according to the respondents' perspectives and meaning of the data. Examples of these codes are given in Appendix 6. These thematic codes were given names that were closest to the concept or theme they were describing. Some codes were broken down into sub-codes to take care of smaller segments of data.

Using the code macro as a criterion, a search request was made for each thematic code using DT Search, a data search computer software package. The data were categorized and major responses were summarized. Some of the responses were quantified and their frequencies and percentages were presented in a tabular form. Others were presented in form of text, matrices, flow charts and ethnographic decision models. Major categories of data were illustrated using verbatim statements of health service providers and beneficiaries.

### Quantitative data

The quantitative data were keyed in MS Visual FoxPro 3.0 and Epi Info 6.04b software packages, verified and cleaned. The data were analyzed using Epi Info 6.04b in form of frequency distributions, percentage values, means and standard errors. Appropriate statistical tests like Chi-square test and Paired t test were used to test the differences between the means or proportions of selected parameters. The analyzed quantitative data were displayed as tables and graphs with accompanying text containing interpretation of data.



## PHASE I

# SAD NEGLECT OF THE ANEMIA CONTROL PROGRAM IN THE HEALTH SYSTEM : RESULTS OF THE SITUATIONAL ANALYSIS

In the formative research phase a situational analysis of the ACP in the Corporation health set up was done which aimed to answer the following questions

- A How does the Vadodara Municipal Corporation currently implement the Anemia Control Program (ACP) chiefly in terms of IFA supplementation and nutrition education/ counselling and where does ACP fit into the overall government health system in this urban set up? What are the perceptions of the government health functionaries regarding antenatal care (ANC) including IFA supplementation?
- B What are the perceptions of pregnant women and their family members (husbands or mothers-in-law) regarding ANC and IFA supplementation during pregnancy - need benefits access to services quality of care
- C Finally what are the systemic changes required in the program which will enable it to function more effectively?

### A Health Service Providers Perspective

In Vadodara the Anemia Control Program (ACP) is a part of antenatal care services (ANC) and is implemented under the Vadodara Municipal Corporation's Family Welfare Program (FWP) as stated earlier (Figure 3) As described in the preceding Methodology section the Family Welfare Services are implemented through several Health Posts and Family Welfare Centres of which two Health Posts OP and NY were taken up in this study

#### ○ Review of training imparted to Female Health Workers (FHWs)

Some information on the nature of training received by FHWs was obtained through informal discussion with a nursing tutor working at a government hospital in Vadodara

The FHWs have to undergo training for 1½ years after secondary schooling This training includes a course on nutrition in which the FHWs receive information regarding vitamins and minerals including iron Anemia related training consists of imparting the following information on Anemia Control Program

- ◆ iron deficiency anemia (IDA) as a problem of public health significance
- ◆ prevalence of IDA in India causes and symptoms of IDA
- ◆ prevention and cure of IDA
- ◆ iron tablets and their dosage
- ◆ use of foods like jaggery brinjal bajra (pearl millet) and green leafy vegetables
- ◆ diagnosis of anemia through clinical examination and history of symptoms
- ◆ estimation of blood hemoglobin by Talqvist technique

Scarcely any teaching aids are used during training Clinical cases of severe anemia are shown to the trainees According to the tutor anemia control was a weak component of the training and not much importance was given to it

After the training the FHWs were given 17 weeks of field experience at Primary Health Centres in rural areas The Chief Medical Officer and the FWMO who oversee the Corporation's health program stated that the Government of Gujarat (GOG) pays little attention to urban functionaries training needs most of their training programs concentrate on rural programs

## ○ The Corporation's Anemia Control Program

Initially several meetings with corporation health officials were held to elicit information on the status of the anemia control program in the Vadodara Municipal Corporation which is summarized below

- ⋮ **Expected Job Functions** Appendix 7 shows that several tasks are expected of the health functionaries under MCH activities which however are not clearly specified. For example "do field work in the allocated area organize camps to improve MCH activities
- ❖ **Target groups of ACP** Target groups for IFA supplementation are all pregnant and lactating women and under 5 children in the field area. The dose per day for women is 100 mg elemental iron plus 0.5 mg folic acid/day (one adult tablet daily) while for under 5 children it is 20 mg elemental iron plus 0.1 mg folic acid/day (one pediatric tablet). After a 8 month long spell of lack of supply of iron tablets in 1996 the supply from the Central Government had become regular. However as the quantities supplied were usually not adequate pregnant women got priority in distribution as compared to other target groups.
- ❖ **Supply of IFA** During the current year there were IFA supplies available in the corporation unlike the previous year when the supply was highly inadequate and erratic. Though the supplies were present in the health centres during the study whether they were adequate is uncertain in view of the infrequent distribution of the tablets by the functionaries.

**Distribution system** The government supply of IFA tablets comes in polythene sachets of 25 tablets per sachet. However as these are not auto-seal sachets once opened the tablets tend to get discolored over time. The sachets are distributed to pregnant women during the MCH clinics and through home visits by the FHWs. Women are given one to two sachets at a time. The FHWs are expected to make 3 home visits during the 3 trimesters of pregnancy. The LMOs added that this however is not possible because of the large population (approx. 10,000) to be covered by each FHW. Monitoring by LMOs is done only with regard to the number of tablets given to those pregnant women who visit the MCH clinic for which records are maintained. The doctors admitted that no record of the compliance with the iron tablets is maintained and no follow up is done to ensure compliance by women.

- ❖ **Given below are the columns of the ANC register**

Sr No	Name and Address	Age	No of Children	T T		Iron Tablets			
				Date of Dose		Pregnant/Lactating /Other Women			
				1st	2nd 3rd	Date	No of tablets	Date	No of tablets

It is clear from the register that firstly the women beneficiaries are all grouped in one column making it difficult to assess distribution to the more important group of pregnant women. Secondly data on distribution only is given not on compliance.

Our observations also confirmed that tablet distribution through home visits is irregular and no follow up visits are made to monitor compliance nor is any record maintained regarding total number of tablets given to each woman or the consumption of tablets by them.

## ○ Information-Education-Communication on anemia

It was very disheartening to note that there is a paucity of IEC material on anemia in the Vadodara Municipal Corporation's health department. Scrutiny of available IEC material and discussions with the corporation officials indicated that the existing IEC material covers topics such as family planning, use of contraceptive methods, immunization and childhood diseases (especially diarrhea) and there was a total absence of materials on anemia and benefits of iron supplementation. Subsequently though some material on anemia did become available.

## Perceptions of Health Service Providers

As seen in Table 3 according to the LMOs FHSs and FHWs the common health problem during pregnancy were anemia nausea and vomiting hypertension and oedema on feet and body In addition the LMOs stated that toxemia was also a problem of concern during pregnancy The FHSs and FHWs added giddiness and frequent urination as common health problems encountered by pregnant women The major reasons given by all the functionaries for these problems comprised anemia inadequate food intake due to cultural beliefs and improper food habits such as avoidance of certain food items considered hot or cold poverty and repeated pregnancies The FHWs felt that heavy household workload also contributed to the occurrence of these health problems The treatment prescribed by them for the above mentioned problems was - drugs to stop vomiting oral iron supplementation and dietary advice for anemia and reduction in salt intake as well as rest for hypertension and oedema The FHWs also mentioned consulting a doctor for these problems

### About anemia

The estimated prevalence of anemia among pregnant women in their respective working areas as perceived by the LMOs ranged from 40 to 70% with 10% of the women estimated to be suffering from severe anemia The FHSs believed it to be as low as 15% or as high as 50% whereas the FHWs estimated anemia prevalence during pregnancy to be in the range of 50 to 70% Detection of anemia during pregnancy was done by observing for clinical signs such as presence of pallor on face palms nails tongue and conjunctiva and symptoms such as weakness tiredness giddiness and breathlessness as well as a decrease in the hemoglobin level Two of the LMOs stated blood testing for diagnosing anemia Subsequent direct observations in the field however revealed that the FHWs and FHSs rarely examined women for clinical evidence of anemia

The common causes of anemia mentioned were worm infestation repeated pregnancies improper diet and malaria The doctors believed that adverse consequences of anemia during pregnancy were weakness reduced appetite decreased rate of weight gain post partum hemorrhage and shock The adverse pregnancy outcomes included intrauterine growth retardation (IUGR) premature delivery and low birth weight babies The FHSs and FHWs stated in general terms that there was a possibility of an anemic woman giving birth to a baby with some type of physical defect or handicap

With regard to prevention and treatment of anemia the LMOs FHSs and FHWs said that they counselled women to take IFA tablets and increase the intake of iron rich foods such as GLVs seasonal fruits pulses legumes jaggery and milk and milk products The LMOs also advised treatment for malaria (as common in their region) small frequent meals regular antenatal check-up and testing of hemoglobin level in each trimester of pregnancy The general problem encountered during counselling according to them was that though the women agreed to take iron tablets they did not put the advice into practice

The iron tablets were distributed by the FHWs and FHSs to the women at the Health Posts during the MCH clinics and through home visits to the women's houses They coordinated with the ICDS anganwadi workers and field level functionaries of an NGO (Baroda Citizens Council) for improving the coverage The record of the number of tablets distributed was kept in ANC and MCH registers However they did not have any record of the actual number of tablets consumed by the women

The main reasons behind non-consumption of iron tablets as perceived by the health care providers were lack of awareness regarding the benefits of tablet consumption side effects such as vomiting abdominal pain and constipation as well as the belief that the tablets were hot They mentioned that the beneficiaries gave excuses such as forgetfulness and dislike of consuming tablets due to their unpleasant after-taste besides side effects such as vomiting constipation and diarrhoea According to many FHSs and FHWs the family members especially mothers-in-law and husbands played an influential role in allowing the women to consume the tablets Also one of the LMOs mentioned that the women do not consume the tablets because of their lack awareness of their importance and refusal by the elders in the family (*Baheno goli khati nathi karan ke temne jankari nathi hoti ane gharna mota na paade chhe*) Therefore they suggested that the family members of the women should be taken into confidence to gain their cooperation

Table 3

PERCEPTIONS OF HEALTH SERVICE PROVIDERS REGARDING HEALTH PROBLEMS DURING PREGNANCY				
Responses		LMOs (n=7)	FHSs (n=7)	FHWs (n=25)
1	Common health problems during pregnancy			
	<input type="checkbox"/> Anemia	7	2	14
	<input type="checkbox"/> Nausea and vomiting	5	6	25
	<input type="checkbox"/> Hypertension	6	4	9
	<input type="checkbox"/> Oedema on feet and body	4	2	13
	<input type="checkbox"/> Toxaemia	4	NR	NR
2	Reasons for these problems during pregnancy			
	<input type="checkbox"/> Anemia	2	1	12
	<input type="checkbox"/> Poor nutrition and inadequate food intake	5	1	9
	<input type="checkbox"/> Wrong food habits	3	NR	NR
	<input type="checkbox"/> Poverty	3	NR	NR
	<input type="checkbox"/> Repeated pregnancies	3	NR	3
3	<b>Treatment for common health problems during pregnancy</b>			
	Anemia			
	<input type="checkbox"/> Iron and folic acid tablets	5	NR	11
	<input type="checkbox"/> Proper diet	2	1	2
	Nausea and vomiting			
	<input type="checkbox"/> Short frequent meals	1	NR	1
	<input type="checkbox"/> Drugs to stop vomiting	1	1	7
	Hypertension			
	<input type="checkbox"/> Reduce salt intake	3	NR	1
	<input type="checkbox"/> Increase rest	2	1	NR
	<input type="checkbox"/> Anti hypertensives	1	NR	NR
	Oedema on feet			
	<input type="checkbox"/> Reduce quantity of salt	1	NR	5
	<input type="checkbox"/> Take rest	1	NR	3
	Toxaemia			
<input type="checkbox"/> Complete bed rest and salt restriction	2	NR	NR	
4	<b>Causes of anemia during pregnancy</b>			
	<input type="checkbox"/> Worm infestation	5	NR	1
	<input type="checkbox"/> Repeated pregnancies	5	2	5
	<input type="checkbox"/> Inadequate food intake	4	3	10
	<input type="checkbox"/> Repeated attacks of malaria	3	NR	1
	<input type="checkbox"/> Irregular intake of iron tablets	NR	3	NR

Responses	LMOs (n=7)	FHSs (n=7)	FHWs (n=25)
<b>5 Treatment of anemia</b>			
<input type="checkbox"/> Regular intake of iron tablets	NR	3	NR
<input type="checkbox"/> Iron folic acid tablets	7	7	25
<input type="checkbox"/> Increased intake of iron rich foods such as GLVs and jaggery and advice from health functionaries for proper nutrition	7	5	15
<b>6 Counselling given to anemic pregnant women by the LMOs</b>			
<input type="checkbox"/> Take iron folic acid tablets	7	4	18
<input type="checkbox"/> Increase the quantity of green leafy vegetables legumes/pulses milk and milk products in your diet	7	6	21
<input type="checkbox"/> Prophylaxis of malaria	2	NR	NR
<input type="checkbox"/> Take food 3 to 4 times a day in small quantities (small frequent meals)	1	NR	NR
<input type="checkbox"/> Come for regular check-up	1	2	2
<input type="checkbox"/> Hemoglobin check-up every 3 months	1	NR	NR

NR = Not Reported

The objective of the government iron supplementation program as perceived by the LMOs was to reduce anemia and promote "healthy mother and healthy baby". As regards distribution of the iron tablets besides the centre based distribution the women also received tablets from ICDS anganwadi centres as well as from the centres run by an NGO according to the doctors.

The FHSs and FHWs believed that the objectives of the government's Anemia Control Program were to reduce maternal mortality and infant mortality to reduce the incidence of anemia during pregnancy and to provide iron tablets to poor people.

### **Suggestions to improve the Anemia Control Program**

With regard to the delivery system of iron tablets the LMOs suggested that first of all the supply of tablets from the government should be made regular. They felt that distribution through home visits and at the centre during regular ANC clinics would improve the coverage.

The improvements suggested by the doctors to make the ACP more effective were as follows:

- ◆ Give protein and calcium rich food supplements to pregnant women such as protein biscuits, groundnuts, roasted bengalgram and milk powder.
- ◆ Encourage pregnant women to visit antenatal clinics regularly.
- ◆ Give family planning advice to avoid unwanted pregnancies.
- ◆ Conduct medical camps in slum communities.
- ◆ Conduct group meetings to impart health education.

The improvements suggested by the FHSs and FHWs were:

- ◆ Reduction of population allotted to each FHW to improve work efficiency.
- ◆ Regular supply of iron tablets.
- ◆ Arrangement of medical camps in communities for diagnosis and treatment of anemia.

### **Perceptions of Female Health Workers on antenatal care services through Matrix Ranking (MR) Exercise**

As a part of the situational analysis three groups of FHWs of the Vadodara Municipal Corporation participated in Matrix Ranking exercises to discuss about -

- regular availability of various ANC services
- utilization of these services by the women beneficiaries
- beneficial effects of these services on the women beneficiaries

Three groups with 8-10 FHWs in each group were formed. A set of 6 cards with illustrations representing 6 ANC services [weight monitoring, antenatal check up, anti-tetanus toxoid (TT) immunization, referral service, nutrition, health education (NHE) and distribution of iron folic acid (IFA) tablets] was given to each group.

A facilitator was chosen from the MotherCare project staff members for each group while the recording was done by one of the FHWs. The MR exercise was first explained to them followed by the actual session and discussions. The FHWs in each group were asked to name all the ANC services and as each service was being called out the facilitator placed the respective cards in front of the group. During this part of the session the FHWs in all the three groups informed the facilitators that besides the 6 services antenatal registration was considered as a separate service and therefore an extra card was added to the 3 sets each. The remaining part of the session was based on the topics discussed below.

## Scoring System in the MR Exercise For the three criteria of availability, utility and benefits

The FHWs were asked to place chalk pieces against each service based on the following scoring pattern

5	pieces	-	most regularly available service/most utilized/most beneficial
3 4	pieces		fairly regular in availability or utilization moderate benefit
1 2	pieces	-	irregular service least utilized or beneficial

### Regular availability of the various ANC services to pregnant women

All 3 groups gave highest scores (5) to TT immunization distribution of IFA tablets and NHE placing them at the top position as they were the most regularly available services to the pregnant women. According to the FHWs all pregnant women came for TT immunization. Most women were aware of it as it was given a wide television coverage between popular series and so they came forward on their own to avail of this service. FHWs on their part too were regular in providing this service.

According to the FHWs they regularly distributed IFA tablets to the women through the centers as well as during home visits and there was enough stock of tablets with the FHWs to ensure regular distribution.

Regarding NHE the FHWs said that it was an ongoing service imparted to the women during home visits and at the centers or during MCH clinics. They educated women whenever they could depending on the situation i.e. individually (one to one) or group based sessions and on request by the mothers.

Antenatal registration was given a score of 5 by 2 groups while 1 group gave it a score of 3 thereby slightly lowering its position. One point that came up for discussion in all the 3 groups was that although they understood the importance of early registration they were unable to have a 100% coverage due to large population to be covered by each worker. As one of the FHW said *Vasti vadhare hovane karane aame badhe kevi rite pohochiye?* (Due to the large population we have to cover how can we reach everywhere?) Also according to them some women did not inform about their pregnancies early enough either because they felt shy or due to cultural beliefs such as someone might cast an evil eye on the unborn child. However those who gave a score of 5 said that they themselves went house to house to register pregnant women thereby ensuring its regularity. The group which said that it was not that regular was because they were given the responsibility of all other vertical health programs as well such as school health program malaria leprosy polio and AIDS-program and programs related to epidemics and floods (emergency services). They admitted that they also had to give priority to women who agreed to family planning operations due to the specific targets which they had to achieve for the family planning activities. In the health workers own words *Atyar sudhi TL target ne hisabe area maa sagarbha baheno maale to pan ae TL karvana hoy toj vadhare dhyan aapiye* (Till now because of TL targets even if we meet pregnant women in the area we concentrate only on those who want to undergo operation afterwards).

Availability of weight monitoring and health checkup were considered to be fairly regular and not very regular mainly because they felt that the women were not aware of the importance of these services. Further they were usually provided only at the center and only if the woman visited the center she could avail of them. Regarding health checkups the FHWs said that the LMOs were not regularly available at the center or MCH and that a complete checkup could be done only in their presence. Many women preferred to go to private medical practitioners as they did not trust the government health centers or clinics.

Referral service was considered as the most irregular service. It received the lowest scores as the FHWs felt that all women did not require this service - only mothers at high risk require it and many of them took outside help. Besides the centers did not have the infrastructure or facilities to treat such cases.

To sum up the FHWs rated the various services in the following manner as regards availability

Most regular	5	TT IFA NHE antenatal registration
Fairly regular	3-4	Weight monitoring Health check up
Irregular	1-2	Referral services

### Utilization of various ANC services by the beneficiaries

Of all the services TT immunization received the highest score in all the groups again because of high level of community awareness and realization of benefit of the service. The FHWs said that all the women came for TT shots on their own.

IFA, weight monitoring, health check up and registration were considered 'fairly utilized' services while referral services and NHE rated between poorly and fairly utilized services.

With regard to IFA distribution, varied scores of 2, 5 and 4 were obtained. The group which gave it the highest score did so as they specified that they distributed the tablets through home visits. However, with regard to consumption of the tablets, none of the groups was sure that the women consumed them regularly. According to them, many women threw away the tablets or forgot to consume them and in some instances the consumption was stopped due to side effects. Many of the FHWs perceived that as the tablets were distributed free of cost, the women thought them to be worthless and bought more expensive tonics from pharmacies instead.

Antenatal health checkup was a fairly utilized service according to 2 groups of FHWs. The reasons perceived were long distances from home to the clinic and parity. The FHWs felt that more than half of the pregnant women would avail of this service regularly if their residence was closer to the health post. One group gave 2 separate scores of 3 and 4 respectively. Score 3 represented primiparous women who preferred to go to private doctors rather than visiting the health post. The score of 4 represented women expecting their second or third child who visited the health post more frequently for availing antenatal care. Some of the FHWs and FHSs also mentioned that *Bahenc check up mate aave pan doctor hotaj nathi etele pachha jaye!* (Women come for checkup but since doctor is not available they have to go back) and *Center par doctor na hoye to ame vajan kariye ane goli aapiye pan tapas na thaye* (When doctor is not present at the center we take weight and give medicine but cannot do the checkup).

The service of weight monitoring was fairly utilized by pregnant women due to lack of awareness in the women that they needed to visit the health centre.

Antenatal registration was also given an average score as the FHWs were not able to cover the entire population allotted to them due to its large size. Preference of women to visit private clinics, also many women did not inform about their pregnancies during early stages. Most of the FHWs and FHSs agreed that the pregnant women come only in the 6th or 7th month of pregnancy for TT immunisation so they get registered at that time (*"Sagarbha baheno 6 mahinej rasi mukava aave tyar temnu registration thay"*).

Referral services and NHE scored between 1 and 3. Regarding referral services, the FHWs said that home deliveries were still common in the slums. There was a problem of conveyance and the FHWs were unable to cover all pregnant women due to the large area given to them. According to the FHWs, the women listened to the elders of their households and consumed or did not consume foods according to their cultural beliefs. One interesting belief of the women as quoted by an FHW was that some women do not consume milk and jaggery because they believe that there will be white spots on the child (*"Dudh ane gol nathi khata, karan ke baalak na matha par ane sharir par safed safed dagha aave chhe"*). Most women did not have time to attend NHE sessions or were reluctant to come and spend time. As one FHW put it, "Out of 5 women, 2 will listen and 3 will not."



The service utilization by pregnant women according to the FHWs view is given below

Well utilized	5	↑	
Fairly utilized	3-4		IFA Check-up Antenatal registration Weight monitoring
Poorly utilized	1-2		Referral Services and NHE

### Services beneficial to pregnant women

The initial response in all the groups was that all the services were beneficial to the pregnant women. However slight variations were obtained on further probing

TT immunization, antenatal checkup and NHE were given the score of 5 by all the 3 groups

TT immunization was perceived as the most beneficial service as many women living in slums delivered at their homes taking help of untrained traditional birth attendants (TBAs) who did not maintain the required level of sanitation. Hence in order to protect both the mother and her child against tetanus, it was given importance by the FHWs.

Regular health checkup was considered very useful for monitoring the health of mother throughout pregnancy and for a better pregnancy outcome. NHE was considered to be very useful for the mothers as it made them aware about the various ANC services available to them as well as their importance for keeping healthy.

IFA distribution service was given a score of 5 by all the groups. This service was considered beneficial as it helped reduce anemia, increase appetite and prevent symptoms such as giddiness. Some FHWs in a group gave it a score of 4 reasoning that even though the pregnant women did not take IFA tablets, they could still get iron from food. However, others felt that as the women had very poor socio-economic background, they would not afford to get iron rich foods throughout the year, hence it was considered necessary that they took the tablets. Thus, this group agreed to give 2 scores of 5 and 4 respectively to IFA tablet distribution.

Weight monitoring and referral services received a score of 5 by 2 groups and a score of 4 by the remaining group. The FHWs felt that through weight monitoring, they could come to know about the development of the foetus as well as about the presence of risk factors if any as too less or too much weight gain would indicate abnormality which could be corrected if detected in time. The group that gave a lower score reasoned that 90% pregnancies progressed well without any complications and even though one did not regularly monitor her weight, it would not cause any trouble. They felt that it would not be feasible to carry heavy weighing scales from house to house during their field visits.

Referral services received similar scores of 5, 5 and 4 by the 3 groups. The 2 groups that gave a score of 5 said that the main aim of referral services was firstly to reduce the number of home deliveries as it put both the mother and her child at risk and secondly to decrease maternal and neonatal mortality. The members of the group who gave a score of 4 said that many women preferred home deliveries with the help of a TBA and that even though they referred them to government hospitals, they could not afford to pay for the transport. Hence the FHWs demanded that in order to make this service more effective, the government should provide an ambulance for such cases.

As regards antenatal registration, one group reduced its score from 5 to 3 stating that although they considered it to be very important and useful, the pregnant women did not consider it to be of much importance. They added that some women would refuse to register their names at all while some would think that the FHWs were registering their names for family planning instead and hence would not cooperate. The other groups who gave it a score of 5 said that through registration, they could identify the antenatal cases based on which they could provide them the other services.

The rating scale obtained based on the order of benefits for each service showed that all the services were perceived beneficial.

The matrix below gives the scores obtained through the 3 matrix ranking exercises

### MATRIX RANKING EXERCISE WITH 3 GROUPS OF VADODARA FEMALE HEALTH WORKERS (FHWS)

Scores Given to Various Antenatal Care Services			
Services	Criteria		
	Regularly available to women	Beneficial to women	Frequently utilized by women
Registration	5 3 5	5 5 3	2 3 4
Weight monitoring	3 3 4	4 5, 5	3 2 5
TT Immunization	5 5 5	5 5 5	5 5 5
Iron folic acid tablets	5 5 5	5 4 5	5 2 4
Health check up	3 4 2	5 5 5	4 3 2
Referral services	2 1 4	4 5 5	3 1 3
Nutrition Health Education (NHE)	5 5 5	5 5 5	3 1 2
Key Score			
5	Most regularly available/beneficial/utilized		
4 3	Fairly regularly available/beneficial/utilized		
2 1	Irregularly available/beneficial/utilized		

Some interesting insights emerged from the MR exercise. Firstly, as expected, most FHWs and FHSs in all 3 groups gave high scores as regards regular availability to 5 of the 7 ANC services saying that they ensured that these were offered regularly to the women. But the responses of the minority were more revealing wherein problems faced according to them were highlighted for 'fair to poor' coverage - for example, several other vertical programs which interrupted their work or irregular availability of doctors. (Our subsequent observations showed that inefficient use of time, poor work organization and inadequate supervision also led to poor service delivery including that of IFA supplements and that an available service was not necessarily qualitatively well implemented.)

Secondly, all services were considered beneficial to women but its utilization by them varied according to the health workers. Except for TT immunization, all other services were utilized to a 'fair-to-poor' degree by women either because of poor awareness, cultural beliefs or preference for private health practitioners. (Our subsequent observations showed that poor quality of care and infrequent community contacts were important reasons why women did not utilize the government services.)

## B Beneficiary Perspective

### ○ Enrolment Profile of the Pregnant Women

Initially 153 pregnant women were enrolled at or before 20 weeks of gestation from the 8 purposively selected slums under the two selected health posts of Vadodara Municipal Corporation. According to the intervention plan the FHWs were expected to assist in the follow-up as home visits were anyway a part of their job functions. However the FHWs remained preoccupied with other vertical programs and campaigns and did not do regular home visits. Hence the follow-up was done by the project staff. Of the enrolled women 50 women could be followed up till delivery through home visits. The two major reasons for the high drop-out were non-cooperation for giving blood for the second time (37 %) and migration to parental homes for delivery (36 %) which is the local custom in the area. Other reasons for the drop-out were medical termination of pregnancy (12 %) and pregnancy complications (15 %) such as miscarriages.

### ○ Socio-Economic Profile of the Pregnant Women

The socio-economic profile of the 153 pregnant women enrolled in the study is shown in Table 4. About half of the pregnant women (54%) studied were Hindus and a third were Muslims. The percentage of women belonging to nuclear families was more or less similar to those belonging to joint families. The family size ranged from 2-18, the average family size being 5 members.

Almost all the women were housewives (90%) with no home based or outside occupation. Majority of their husbands had a salaried employment (29%) and were skilled workers (26%). The rest of them were drivers, tarriwallahs, unskilled workers or self employed.

The total family income per month of majority of the women (60%) ranged from Rs 1000-2500\* with 58% of the families having per capita income of Rs 201-500 per month, reflecting their disadvantaged economic status.

The literacy status of the husbands was much better than that of their wives, with 90% of the husbands being literate as against 77% of the women. The level of education was also higher in the men with 57% of the men being educated till secondary school level as against 40% of the women.

More than half of the women lived in semi-pucca houses. While 46 among them had individual taps for drinking water, a majority of them (n=72) shared a common tap. A high percentage of the women (75%) had individual toilets in their houses. The sanitation in and around the houses was rated on a scale as described in Appendix 1 (Socio economic status proforma) as Poor, Fair and Good. About 60% of the women fell in the Fair category and 19% in the Good category. The hygiene and sanitation of the environment overall was not very poor considering the fact that they were slum dwellers.

### ○ Obstetric History of the Pregnant Women

The obstetric history of seventy pregnant women who were enrolled in the study is given in Table 5. The mean age of the women studied was around 23 years ranging from 19-40 years. The age at menarche ranged from as low as 10 to as high as 18 with the mean age at menarche being around 14 years. As this information was based on recall of age it may give only an approximate age at the onset of menarche. The women studied were married at the young age of around 18 years and most of women were mothers by the age of around 21 years.

Almost half (41%) of the women were in their first pregnancy and about the same number had either one or two children. The gap between two pregnancies in a third of these women (32%) was one to two years, indicating a need for creating awareness and providing services for child spacing contraceptive methods.

A very high percentage of women (>90%) reported that they had no past history of low birth weight babies, premature deliveries or still-births. We could not verify this stated information through written records or case papers with women, nevertheless it indicates overall an uneventful obstetric history though low birth weight is known to be a problem in low income groups.

US\$ 1 = Rs 42 (August 1998)

Table 4

<b>SOCIO-ECONOMIC PROFILE OF THE PREGNANT WOMEN (N=153)</b>		
<b>Characteristic</b>	<b>n</b>	<b>%</b>
<b>Religion</b>		
Hindu	83	54
Muslim	57	37
Christian	13	9
<b>Family Type</b>		
Nuclear	72	47
Joint	81	53
<b>Family Size</b>		
<4	53	35
4-7	81	53
>7	19	12
<b>Occupation</b>		
Self		
Housewife	148	97
Maid/servant and other	5	3
Husband s		
Service	44	29
Driver	28	18
Lariwala	17	11
Skilled worker	39	26
Semi-skilled worker	5	3
Unskilled worker	6	4
Self employed	12	8
Unemployed	2	1
<b>Total family income per month (Rs )</b>		
≥ 1000	23	15
1001-2500	91	60
2501-5000	29	19
≤ 5001	10	6
<b>Per capita income per month (Rs )</b>		
≥ 200	13	8
201-500	88	58
501-1000	42	28
≤ 1001	10	6
<b>Education</b>		
Self		
Illiterate	36	23
I - VII	52	34
VIII - XII	61	40
Undergraduate/Graduate	4	3

<b>Characteristic</b>	<b>n</b>	<b>%</b>
<b>Husbands</b>		
Illiterate	15	10
I - VII	43	28
VIII - XII	87	57
Undergraduate/Graduate	8	5
<b>Construction of the house</b>		
Hut	3	2
Kutcha house	22	14
Semi-pucca house	78	51
Pucca house	50	33
<b>Source of drinking water</b>		
Individual tap	46	30
Common tap	72	47
Hand pump	22	14
Borewell	13	9
<b>Toilet facilities</b>		
Individual toilet	115	75
Public toilet	6	4
Open defecation	29	19
Sharing with neighbours	3	3
<b>Sanitation of the house and surrounding*</b>		
Poor	33	22
Fair	91	59
Good	29	19

Please see Appendix 1 (Socio economic status proforma) for the scoring system

Table 5

OBSTETRIC HISTORY OF THE PREGNANT WOMEN (N=70)		
Parameter	n	%
<b>Age of the women (years)</b>		
<21	10	14
21-25	47	67
>25	13	19
<b>Age at menarche (years)</b>		
<14	39	56
14-16	26	37
>16	5	7
<b>Age at marriage (years)</b>		
<16	11	16
16-20	53	76
>20	6	8
<b>Party</b>		
Primiparous	29	41
One child	22	32
Two children	12	17
More than two children	7	10
<b>Age at the birth of first child (years)</b>		
<19	16	23
19-22	41	59
>22	13	18
<b>Birth interval</b>		
Primiparous	29	41
<1 year	6	8
1-2 years	22	32
>2 years	13	19
<b>History of miscarriages</b>		
None	64	91
One	4	6
More than one	2	3
<b>History of premature deliveries</b>		
None	65	93
One	4	6
More than one	1	1
<b>History of still births</b>		
None	66	94
One	4	6
<b>History of low birth weight babies</b>		
None	63	90
One	7	10
<b>History of post partum haemorrhage</b>		
None	63	90
Severe	6	9
Moderate	1	1

## Anthropometric measurements of the women

Table 6 shows anthropometric measurements of the pregnant women at enrolment and follow up. The mean height of the women studied was 151.36 cm. Gopaldas et al (1991) reported mean height of 151.1 cm in their evaluation of ICDS in selected districts of tribal and rural Gujarat. The mean weight of the pregnant women at enrolment in this study was 46.58 kg. Using the cut-off points suggestive of chronic energy deficiency in adults (BMI < 18.5) established by the International Dietary Energy Consultative Group (James et al 1988) thirty nine percent of the women had BMI below 18.5.

Table 6

ANTHROPOMETRIC MEASUREMENTS OF THE PREGNANT WOMEN AT ENROLMENT (N=153)	
Measurements	Mean ± SE
Height (Cm)	151.439±0.498
Weight (Kg)	45.666±0.634
Body Mass Index (BMI)	19.871±0.239

## Prevalence of Anemia

The pregnant women enrolled were classified based on their hemoglobin levels into normal (Hb ≥ 11 g/dl), mildly anemic (10-11 g/dl), moderately anemic (7-9 g/dl) and severely anemic (<7 g/dl) as shown in Table 7. The percent prevalence of anemia was high (88%). Unfortunately, despite the nationwide Anemia Control Program of the Government of India, anemia has remained depressingly high over the past two decades as several other studies also indicate (Figure 7).

The percentage of women having severe anemia (Hb < 7 g/dl) was also high (11%) and comparable to that reported in a multi-centric study by ICMR (1989) carried out in eleven states of India (12%). The frequency distribution of the hemoglobin levels of the pregnant women is presented in Figure 8, which highlights that most women had hemoglobin levels between 9 and 10 g/dl.

Table 7

PREVALENCE OF ANEMIA IN THE PREGNANT WOMEN AT ENROLMENT (N=153)		
Severity of Anemia	n	%
Mild <sup>1</sup>	33	22
Moderate <sup>2</sup>	84	55
Severe <sup>3</sup>	17	11
Overall anemia prevalence	134	88
Normal <sup>4</sup>	19	12

<sup>1</sup> Mild anemia Hb 10.00 to 10.99 g/dl  
<sup>2</sup> Moderate anemia Hb 7.00 to 9.99 g/dl  
<sup>3</sup> Severe anemia Hb < 7.00 g/dl  
<sup>4</sup> Normal Hb ≥ 11.00 g/dl

Figure 7

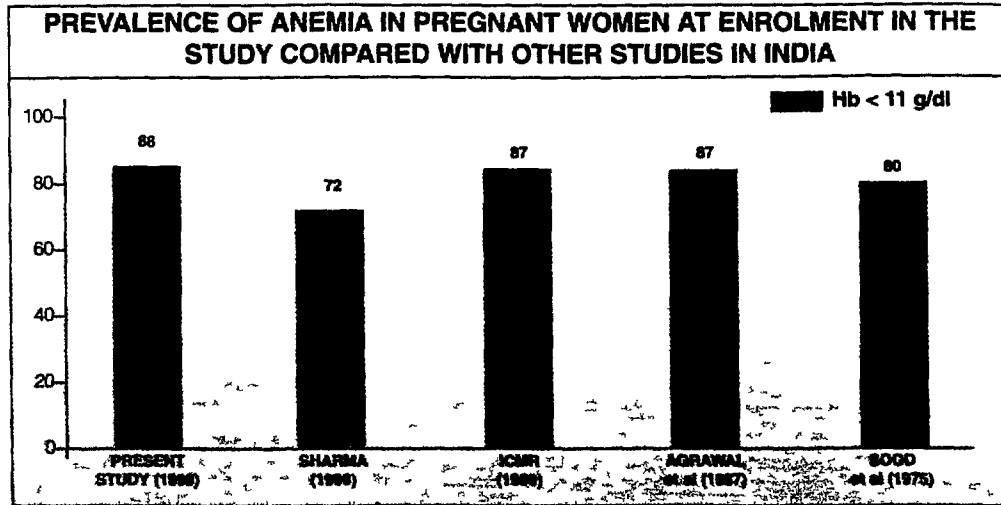
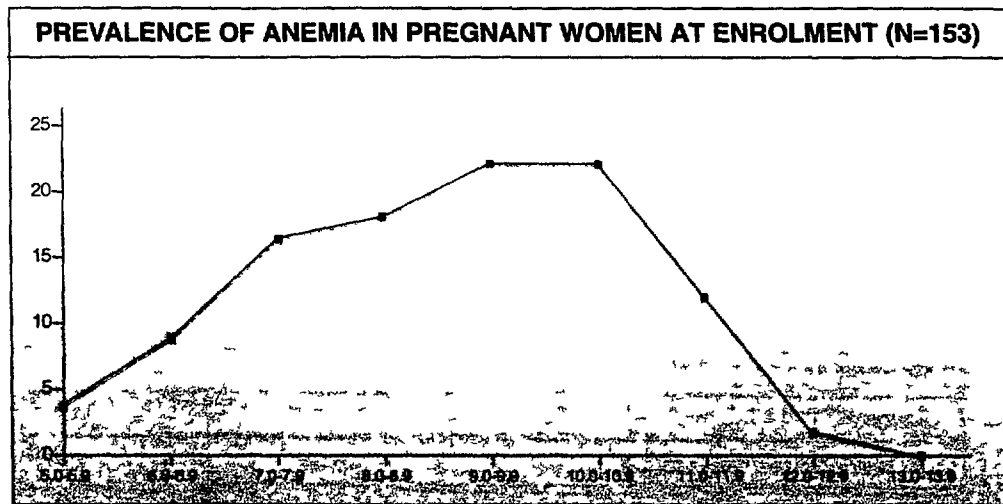


Figure 8



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## Morbidity Profile of the Pregnant Women

The data on morbidity were elicited from a random stratified sample of 80 pregnant women. The type of morbidities experienced by the pregnant women during the different trimesters of pregnancy has been given in Table 8. The mean number of morbidities suffered was  $3.96 \pm 0.24$  (Mean  $\pm$  SE). Majority of the women (41%-66%) reported that they suffered from morbidities such as vomiting, nausea, giddiness and increased frequency of micturition. Nearly one fourth of the women said that they experienced burning during micturition, pain in abdomen, loss of appetite, acidity and headache as mentioned in the table. Only a small percentage of women suffered from infectious diseases such as malaria (6%) and fever (11%). It was found that women experienced the morbidities mainly in the first and second trimester, the frequency decreased with gestational age. Similar findings have been reported in a number of other studies in urban Vadodara (Sharma 1996, Saiyed 1996 and Edward Raj 1994).

Table 8 also shows the percentage of women taking treatment for the respective morbidities. Majority of the women (68% - 100%) took prompt treatment for infectious morbidities i.e. fever and malaria but the incidence of these diseases was less. However, only a few women took treatment for most of other morbidities suffered, probably because they considered these to be part of pregnancy related problems.

Table 8

MORBIDITY PROFILE OF THE PREGNANT WOMEN (N=80)													
Sr	Type of morbidity	Women experiencing in the morbidity		Gestational Age at which experienced								Women taking treatment	
				1st trimester		2nd trimester		3rd trimester		All trimesters			
		n	%	n	%	n	%	n	%	n	%	n	%
1	Vomiting and nausea	53	66	34	64	14	26	1	2	4	8	20	38
2	Giddiness	53	41	15	44	9	26	5	15	5	15	11	32
3	Burning micturition	13	16	3	23	5	38	4	31	1	8	2	15
4	Increased frequency of micturition	40	50	10	25	10	25	12	30	8	20	8	20
5	Pain in the abdomen	21	26	6	29	9	43	3	14	3	14	8	38
6	Perverted appetite	9	11	5	56	-	-	2	22	2	22	-	-
7	Loss of appetite	16	20	6	37	4	25	3	19	3	19	4	25
8	Acidity	22	28	2	9	7	32	9	41	4	18	6	27
9	Headache	16	20	6	38	4	25	4	25	2	12	3	19
10	Leucorrhoea	27	34	4	15	7	26	12	44	4	15	4	15
11	Barkache	23	29	3	13	9	39	8	35	3	13	5	22
12	Cramps in lower limbs	15	19	4	27	3	19	4	27	4	27	3	20
13	Fever	9	11	3	33	4	45	2	22	-	-	6	68
14	Malaria	5	6	1	20	4	80	-	-	-	-	5	100

## ○ Free lists and seasonality diagrams with pregnant and lactating women

As described in the methodology section two free listing exercises followed by seasonality diagramming exercises were conducted with two groups of pregnant and lactating women to determine the foods which increase the strength of blood and to get information regarding seasonal availability and consumption of these foods

The groups consisted of women in their late pregnancy (3rd trimester) and some lactating women having children below 6 months of age. They were explained the purpose of this exercise

In this exercise the women were asked to depict the consumption of specific foods according to their seasonal availability by means of glass beads using the concept of relativity. One bead was used to show that the food was less available and consumed during a particular season. Fair availability and consumption was shown by putting 2 beads against the name of the foods whereas the foods most frequently available and consumed were marked with 3 beads

Prior to this the participants were first asked to free list foodstuffs which they thought would increase the strength of their blood. One participant who was able to read and write was asked to write down the free listed names on separate pieces of paper. A wide variety of about 20 foods were mentioned in the free lists as list given below

Group 1		Group 2	
Milk	Watermelon	Milk	Apple
Jaggery	Apple	Khichadi	Sweet lime
Wheat porridge	Eggs	Maize flour rotla	
Khichadi	Mutton	Wheat flour rotla	
Rotla	Fish	Rice	
Spinach		Potato	
Fenugreek		Brinjal	
Amaranth		Tinda	
Shepu		Spinach	
Onion		Green gram	
Potato		Bengal gram	
Brinjal		Lentils	
Tomato		Sprouted legumes	
Bengal gram		Grapes	
Green gram		Sapota	

One woman mentioned that normally during pregnancy women liked to consume sour foods however she felt that they were not useful to make their blood red and healthy. Another woman felt that they should take a doctor's advice regarding diet during pregnancy. She added that her doctor had asked her to eat everything except papaya which she thought might lead to miscarriage. Some varied responses of the women in their own words

*Suvavad vakhate ke pachhi Jamphal khavathi baalak ne pet maa dukhe chhe* (During pregnancy or lactation if jamphal is consumed the baby will have stomachache)

*Chana unala ma garam pade chhe* (Bengalgram is "hot" especially in summer)

After this the group were asked to put beads in front of the free listed foods for seasonal availability as explained previously. Questions were asked simultaneously to facilitate discussion. Foods which were common to both groups and were frequently mentioned are presented below. Foods available were consumed by women if they were economically affordable and generally food taboos during pregnancy were few

FOOD ITEM	WINTER	MONSOON	SUMMER
Milk	***	***	***
Khichadi (Rice + Tur dal)	***	***	***
Rotla	***	***	***
Green gram	***	*	**
Spinach	***	**	**
Brinjal	***	**	*
Potato	***	***	***
Onion	***	***	***
Tomato	***	***	***
Apple	***	*	*
KEY	**	most available/consumed	
	*	less available/consumed	
		least available/consumed	

It is evident from the matrix above that the women felt that their daily staple diet which consisted of *rotla* (unleavened bread) *khichadi* (rice and red gram dal preparation) and potatoes and onions made their blood red and healthy. Milk though available throughout the year was consumed only in tea and none of them drank milk as such. Onions and potatoes were available over the year and consumed daily. Brinjal was consumed mostly during winters as it was considered hot. Also brinjals were expensive during summers due to the marriage season according to the women. Tomatoes though costly were liked by all and used in dal preparations. Apples were very expensive hence consumed only in winters as the women thought that they were good for health. This participatory exercise clearly revealed that awareness was lacking regarding the specific foods rich in iron or vitamin C.

### Frequency of Consumption of Iron and Vitamin C Rich Foods

Locally available protein iron and/or vitamin C rich foods were listed and women were questioned regarding the frequency of their consumption.

The frequency of consumption of protein iron and vitamin C rich foods as reported by the women varied considerably as shown in Table 9. Nearly one fourth of the women (15-23%) consumed steamed bengal gram and moth beans either once, twice or three times a week. Majority of the women (49%) reported that they consumed green leafy vegetables two or three times a week in season (winter). The consumption of other green leafy vegetables such as shepu, mint and spinach either once, twice or thrice a week was reported by some of the women (14% to 28%).

There was a wide variation in consumption of vitamin C rich fruits. A high percentage of women (84%) reported that they consumed tomatoes daily. Some of the women (9% - 30%) consumed fruits like oranges, watermelon, guava, Indian gooseberries and lemon either daily, once a week or two to three times a week. The consumption of other foods such as bajra and jaggery was less as reported by the women. Majority of the women (73%) were non-vegetarians, however, the intake of heme iron through animal foods was negligible. The women consumed animal foods only once a month or only on some festive occasions, probably because of the high cost.

The food intake data suggest that in view of the availability of iron and vitamin C rich foods and few food taboos during pregnancy, it is likely that a well implemented NHE program will help encourage women to improve their diet.

Table 9

FREQUENCY OF CONSUMPTION OF SELECTED PROTEIN, IRON AND VITAMIN C RICH FOODS BY THE PREGNANT WOMEN (N=80)							
Sr No	Food Items	Local Term	Percent Responses				
			Every Day	2-3 Times a Week	Weekly	Fort-nightly	Monthly
<b>I</b>	<b>Pulses</b>						
1	Steamed Bengalgram	<i>Bafela chana</i>	-	19	20	10	4
2	Cowpeas	<i>Chola</i>	3	11	9	5	11
3	Lentil	<i>Masoor</i>	-	8	6	4	6
4	Dry peas	<i>Suka vatana</i>	-	8	19	10	11
5	Mothbeans	<i>Math</i>	-	15	23	9	8
<b>II</b>	<b>Green Leafy Vegetables</b>						
1	Colocasia leaves	<i>Pattarveli na pan</i>	-	8	8	13	16
2	Fenugreek leaves	<i>Methi ni bhaji</i>	8	49	20	9	6
3	Mint	<i>Phudino</i>	15	18	9	3	-
4	Shepu	<i>Suva ni bhaji</i>	5	28	14	10	5
5	Spinach	<i>Palak</i>	6	19	6	3	-
<b>III</b>	<b>Fruits</b>						
1	Tomato	<i>Tameta</i>	84	6	5	-	-
2	Indian goose berries	<i>Amla</i>	13	11	10	4	3
3	Orange	<i>Santra</i>	9	11	25	8	8
4	Guava	<i>Jamphal</i>	10	18	18	15	8
5	Watermelon	<i>Tadbuj</i>	10	15	19	9	4
6	Lemon	<i>Limbu</i>	30	19	13	8	-
<b>IV</b>	<b>Other Foods</b>						
1	Jaggery	<i>Gol</i>	11	9	8	5	8
2	Bajra	<i>Bajri</i>	19	15	13	5	6

) **Perceptions of the Pregnant Women regarding ANC services through Focus Group Discussion:**

As already stated in the methodology section 3 focus group discussions (FGDs) were conducted with group of 8 to 10 pregnant women each to gain information regarding their perceptions of common health problems during pregnancy anemia and iron supplementation their awareness of various antenatal care services and changes in their diet and work pattern during pregnancy

The common health problems during pregnancy mentioned by the women were nausea vomiting stomachache backache giddiness tiredness and weakness. Most of the women did not take any medical treatment to get relief from these symptoms as they thought them to be a normal occurrence during their pregnancies.

None of the women had heard of *pandurog* - the Gujarati term for anemia. However they talked of certain signs and symptoms which were associated with *occhu lohi* or less blood. These consisted of *kamjori/ashakti* (weakness) *phikkash* (paleness) breathlessness *bhook nathi lagti* (loss of appetite). As one woman said *lohi nu paani thai jay chhe* (blood turns into water). They also mentioned that they were not able to do their household work properly due to these symptoms. One woman stated that weakness caused anemia. As she said *kamjori hoti hai jab khoon kam hota hai* (one feels weak as the blood volume decreases).

When asked about the difference between an anemic and a normal pregnant woman the women answered that an anemic woman looks pale feels restless giddy cannot do her work is disinterested in her environment and gives birth to a weak child. According to them a normal pregnant woman is the one who looks nice and healthy with a red face and body and gives birth to a healthy baby.

Many of the pregnant women had heard of iron tablets and some of them were consuming iron tablets procured from Anganwadis and health centres run by Baroda Citizens Council. They said that the advice given to them was to consume one tablet daily after food by which they would get strength (*shakti*). The women referred to the iron tablets as *shakti ni lal goli* (red strength giving tablet).

The benefits of iron tablet consumption experienced by the women included a feeling of well being (*saru lage*) feeling hungry (*bhook lage*) getting strength (*sharr mein shakti*) and improvement in the quality of blood (*lohi no sudharo thay*). The women also mentioned that the tablets gave them energy because of which they could eat well and do their work. Only a few women complained of uneasiness vomiting and presence of black coloured stools due to tablet consumption. All of them agreed that iron tablet consumption did have beneficial effect on their health.

While talking about their knowledge of other antenatal care services it was found that all the women knew about TT vaccination as it was done at the MCH clinic and even at the ICDS anganwadi centre. The women who visited the Baroda Citizens Council's health centre recalled services such as physical examination blood testing and weight monitoring. They also received medicines at the centre.

When discussing about the diet during pregnancy the women came to a consensus that they should eat all types of foods during pregnancy and increase the quantity and frequency of food consumed. One woman said that curd and buttermilk should be avoided during pregnancy as according to her these food items caused oedema of the body. Another woman said that she avoided eating papaya and guava.

Most of the women who participated in the discussion stated that there was no change in the amount of work that they did in the usual routine. Only a few of them (n=3) felt tired after doing their household work.

### 1) Perceptions of pregnant women and their family members regarding antenatal care services through semi-structured interviews

The awareness of the antenatal care services and anemia was assessed through semi-structured interviews of 40 pregnant women and one family member either mother-in-law or husband of each of these 40 women. These interviews were conducted by the female health workers (FHWs) who as stated earlier were trained for the same. Table 10 sums up the major findings.

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groups during ges II

#### Registration for antenatal care (ANC)

A majority of these women (n=36) had registered in health facilities such as government and private hospitals in their areas and their family members were aware of it. Only 4 of them had not registered as they were in first and second trimester of pregnancy and felt that it was too early to register. They were supported by their family members in this regard. Some of the family members were unaware of the month in which the women had registered.

Table 10

PERCEPTIONS OF PREGNANT WOMEN AND FAMILY MEMBERS REGARDING ANTENATAL CARE SERVICE					
Sr No	Major Responses	Pregnant Women (N=40)		Family Members (N=40)	
		n	%	n	%
<b>I</b>	<b>Registration for antenatal care</b>				
	1 Yes	36	90	36	90
	2 No	4	10	4	10
<b>II</b>	<b>Accompanied for the ANC to the hospital</b>				
	1 Yes	34	85	33	84
	2 No	2	5	3	8
	1 Accompanied by				
	a) Husband	23	54	26	65
	b) Mother-in-law/Sister-in-law	8	20	6	15
	c) Mother	2	5	3	9
	d) Neighbour	1	2.5	2	5
<b>III</b>	<b>Awareness of available services</b>				
	1 Receive iron tablets	17	43	20	50
	2 Weight monitoring	26	65	18	45
	3 Tetanus Toxoid immunization	18	45	17	43
	4 Physical examination by doctor	20	50	10	25
<b>IV</b>	<b>Services actually received</b>				
	1 Received iron tablets	18	45	19	48
	2 Weight monitoring	18	45	12	30
	3 Tetanus Toxoid immunization	16	40	12	30
	4 Physical check-up	15	38	2	5
<b>V</b>	<b>Importance of the various antenatal care services as perceived by respondents</b>				
	1 Weight monitoring				
	a) Know whether baby is developing	14	35	22	55
	2 Antenatal check-up by doctor				
	a) Know delivery time and for safe delivery	17	43	19	48
	b) Can assess health and development of the child	12	30	14	35
	c) To know if blood is less than iron tablets can be prescribed	4	10	-	-
	3 Iron folic acid supplementation				
	a) Increases appetite	24	60	14	35
	b) Increases strength	22	55	18	45
	c) Can work more	10	3	5	13
	d) Improves the quality of blood	5	13	-	-

Sr No	Major Responses	Pregnant Women (N=40)		Family Members (N=40)	
		n	%	n	%
4	Vaccination against Tetanus Toxoid				
a)	Prevents tetanus	33	83	32	80
5	Nutrition Health Education				
a)	Receive information regarding foods to be consumed during delivery	11	28	-	-
b)	Improves health	5	13	6	15
c)	Receive information regarding iron tablets which increases food intake gives more strength and	5	13	6	15
d)	child weight also increases Improves diet	-	-	7	18
<b>VI</b>	<b>Consuming iron tablets</b>				
1	Yes	35	88	38	95
2	No	5	12	2	5
<b>VII</b>	<b>Needs reminder to consume IFA tablets</b>				
1	Yes	8	20	13	32
2	No	32	80	25	63
1	Reminded by				
a)	Husband	3	8	2	5
b)	Mother-in-law	2	5	4	10
c)	Children	1	2	1	2
<b>IX</b>	<b>Special dietary care to be taken by pregnant women</b>				
1	Eat everything	29	73	15	38
2	Eat foods such as bajra GLVs fish mutton	30	75	21	53
3	Eat foods like tomatoes guavas amla	14	35	9	23
<b>X</b>	<b>Work performance during pregnancy</b>				
a)	Works more	8	20	9	22
b)	Works less	12	30	9	22
c)	Same as before	16	40	22	22
d)	Same but slowly	4	10	-	-
<b>XI</b>	<b>Registration for delivery</b>				
1	Government hospital	14	35	17	43
2	Private hospital	15	38	14	35

### ***Visits for antenatal care (ANC)***

There was a lot of variation in the number of visits to the antenatal care clinics during pregnancy as reported by the pregnant women and their family members. The pregnant women reported that they had gone for antenatal check up once (n=9) twice (n=13) or thrice (n=7) whereas their family members reported that the women went once (n=9) twice (n=7) or thrice (n=11). Many of the women (n=23) said they were accompanied by their husbands for the antenatal check-ups and a few (n=4) were accompanied by their mothers-in-law or sisters-in-law. Family members' responses were similar. However, at the time of exit interviews with women it was observed that most of the pregnant women had come to the clinic alone and for the purpose of child immunization.

### ***Awareness of ANC services***

The awareness of the pregnant women regarding the different ANC services was related to the actual services received by the women during their visits to the antenatal clinics. Interestingly, a higher percentage of family members were aware of the ANC services as compared to the women. The awareness of services such as weight monitoring, receiving iron tablets, vaccination against tetanus toxoid and physical checkup was found to be higher (43-65%) as compared to services such as receiving nutrition-health education including dietary advice (2-3%). Women who had received TT injections were aware of immunization during pregnancy as a routine part of the ANC services.

### ***Services perceived useful***

All ANC services were perceived to be useful by the women and their family members, but about half of them could not elaborate on the reason. Most of the others felt that antenatal checkup by the doctor helped to know the date of delivery and to ensure safe delivery. About a third mentioned that the checkup helped to assess the health and development of the child.

Weight monitoring of women was stated as useful to know the development of the fetus or the health of the women. It was noticed that very few pregnant women reported that antenatal care services can help to assess whether blood in the body is sufficient, so that if required, iron tablets can be prescribed by the doctor.

The purpose of vaccination against tetanus toxoid to prevent tetanus in the pregnant women and the child was known to a majority of the pregnant women (83%) and their family members (80%), which is not surprising given that mother and child immunization is a major focus of MCH programs.

The awareness of the purpose of NHE was low in the pregnant women and even lower in their family members, perhaps because it is a very infrequently given service. A few women mentioned that NHE is important to receive information regarding foods to be consumed during pregnancy (28%), to improve health (13%) and to receive information regarding importance of iron supplementation (13%).

More than 80% of the family members could not respond regarding NHE.

### ***Importance of Iron Supplementation***

Regarding the importance of iron supplementation to increase appetite, the awareness was higher in the pregnant women (60%) as compared to their family members (35%). As majority of the women said -

*Shakti ni gol bhookh lagva mate upyogi chhe*  
(Strength giving tablets are useful to increase appetite)

*Lal goli levathi khorak saro levay tenathi aapnu ane aapna balaknu vajan vadhe"*  
(By taking red tablets food intake increases because of which ours and our child's weight increases)

Also, a higher number of pregnant women were aware of the other benefits of iron supplementation such as increase in strength, increase in working capacity and improvement or increase in the blood, as compared to the family members. These responses regarding the importance of the iron supplementation were associated with the actual benefits experienced by the women on consuming the iron tablets. As mentioned by them in their own words



*Lai shakti ni goli niyamit levathi vajan vadhe ne sharir saroo rahe Lohi pan vadhe*

(By consuming red strength giving tablets regularly weight increases and body remains good the blood also increases)

Only a few of the women and their family members stated that consumption of iron tablets reduces the symptoms of anemia such as pallor and giddiness and increases the work efficiency by increasing the strength in the body

### ***Compliance with Iron Supplementation***

A high percentage of pregnant women (88%) and family members (95%) reported that they consumed iron tablets procured mainly from anganwadis private hospitals or government hospitals and only infrequently procured from the Family Welfare Centres Some of the women needed to be reminded to consume the iron tablets as mentioned by the pregnant women themselves (n=8) and their family members (n=13) They were either reminded by their husbands mother-in-law or children to consume the iron tablets

### ***Special dietary care during pregnancy***

Three fourth of the pregnant women interviewed reported that they ate everything during pregnancy including foods rich in iron such as bajra GLVs fish and mutton A third of the women included vitamin C rich foods such as tomatoes amla and guavas The awareness of the family members regarding importance of intake of iron and vitamin C rich food was less as compared to that in the pregnant women One mother-in-law mentioned that because a *dora* (a sacred thread) was given by a faith healer to her daughter-in-law she was supposed to avoid foods such as bajra jaggery and brinjal One mother-in-law did not allow her daughter-in-law to consume *Urad Dal* or *Urad* (blackgram dal or whole blackgram) since it is sticky because of which she believed that the fetus might get covered with a sticky substance It is clear that nutrition-health education needs to be imparted not only to the pregnant women but also to their family members Further the earlier participatory research methods suggested that in practice intake of iron or vitamin C rich foods was less than that stated in the interviews

Majority of the women (40%) reported that they worked as they did household work as they did earlier which was supported by their family members (56%) About one-fourth of the women however were able to do less work than before

### ***Registration for delivery***

Majority of the women (73%-78%) had registered for delivery at government hospitals or at private hospitals Only two mentioned of home delivery The remaining had not decided the place of delivery since they thought it was too early to register as they were in the first trimester of pregnancy

### ***Suggestions for improving ANC services***

Nearly half of women and the family members did not give any suggestion regarding the improvement of ANC services The important suggestions given by some of them are mentioned below in order of frequency of responses

- ◆ Vehicle facility to and from the health post to the slum area for antenatal check-up and to take the women to government hospitals at the time of delivery
- ◆ Home visits by the doctors in the community
- ◆ NHE to be given during the home visits by the FHWs and the doctors
- ◆ Other medicines for common illnesses such as fever cold to be provided at the health posts and anganwadis

One interesting suggestion was that meetings should be organized with participation of pregnant and lactating women wherein the lactating women could share their experiences with the pregnant women

## ○ Behaviours of pregnant women regarding procurement and consumption of iron tablets

Thirty six women were interviewed in an open-ended way at their homes to understand their reported behaviours related to procurement and consumption of iron tablets. As shown in Table 11, about two-thirds of the women reported that they started consuming the tablets around the fifth month of pregnancy or later. Most of the women said that they were currently procuring iron tablets mainly from the anganwadi worker in their areas. A few (17%) of the women received tablets both from the anganwadi worker and doctors from government and private hospitals.

Nearly half of the women went to the anganwadi centre to receive the tablets, while one-third said that the anganwadi worker delivered the tablets at their homes. Others said that they visited the doctors in government and private hospitals. Among those women who went to the anganwadi, one-third received the tablets at the time of receiving supplementary food. Similarly, according to seven women, the female health worker (FHW) gave IFA tablets when she gave anti tetanus toxoid injections at the anganwadi or health centre.

The size of the offtake of IFA received varied, being 35, 30 or 25 tablets, as seen in Table 11.

### **Information given to the women at the time of receiving IFA tablets**

Nearly two-thirds of the women (67%) said they received information regarding the benefits of consumption of iron supplementation from the government doctors, doctors working in semi-government hospitals and from the anganwadi worker, that is, the tablets would give them strength, improve and increase their blood and help them improve their appetite. Only a few women (7%) received dietary advice, such as incorporating green leafy vegetables and pulses in their daily diet.

### **Consumption of iron folic acid (IFA) tablets: Reasons for consuming IFA tablets**

As regards consumption of IFA tablets, Table 11 depicts that 86% of women reported that they consumed IFA tablets regularly. Nearly half of them felt that the tablets gave them strength (*shakti aape*)<sup>7</sup>. A third of them stated that due to tablet consumption they were able to take food regularly (*khoraak levay chhe*)<sup>7</sup>, their body remained healthy (*sharir tandoorast rahe chhe*)<sup>7</sup> and that the tablets improved their blood (*lohi no sudharo thay*)<sup>7</sup>. A few women (n=5) said that the quantity of blood in the body increased (*sharir ma lohi vadhe*)<sup>7</sup> or that they felt like doing household work (*kam karvanu man thay chhe*) by taking tablets regularly (n=5). Some other reasons the women reported: *shakti aapdi ghati na jay* (maintains strength), *kamjori jevu na lage*<sup>7</sup> (do not feel weak), *iron ne calcium aape je lohi vadhare ne balak ne tandoorast rakhe* (tablets give iron and calcium which increase blood and keep the baby healthy) and *balak ni vriddhi thay*<sup>7</sup> (baby grows).

Women who consumed tablets and experienced benefits tended to be more interested in procuring them regularly. Thus, reasons given for procurement were similar to the benefits stated above. For example, as one woman stated: *goli levathi ane khavathi lohi no sudharo ane vadharo thay ane lohi ochhu na thay*<sup>7</sup> (By getting and consuming the tablets, our blood improves and increases and does not decrease). Only one woman said: *Mafat ma male toh shu kam apde leva nahi javanu* (When the tablets are available free of cost, why should we not go and get them?).

In contrast to the present study, findings by Moore et al (1991) in Indonesia revealed that most of the pregnant women in rural areas could not explain the reasons why they should take IFA tablets during pregnancy; all that they knew was that they were advised to do so. These women were unaware of the benefits of iron tablets. In the present study, about 50% of the women could state benefits of IFA tablets and also experienced them. One reason for this could be that in an urban setting many women received information on IFA supplementation from different sources such as doctors (both government and private) and anganwadi workers.

Table 11

<b>BEHAVIOURS OF PREGNANT WOMEN REGARDING PROCUREMENT AND CONSUMPTION OF IRON TABLETS AND UNDERLYING REASONS (N = 36)</b>			
<b>Sr No</b>	<b>Major responses</b>	<b>n</b>	<b>%</b>
<b>I</b>	<b>Has consumed IFA Tablets in the current pregnancy</b>		
	1 Yes	36	100
	2 No	0	-
<b>II</b>	<b>IFA tablets started from</b>		
	1 <4 m	4	11
	2 4 - 6 m	29	80
	3 >6 m	3	8
<b>III</b>	<b>Procurement of tablets</b>		
	1 Currently procures IFA tablets		
	a) Yes	31	86
	b) No	5	14
	2 Major reasons for non procurement of IFA tablets		
	a) Long distances from home to the place of distribution	2	5
	b) Side effects such as nausea and vomiting	2	5
	c) Dislike the taste and unpleasant odour of the tablets	1	3
	3 Sources of procurement of IFA tablets		
	a) Anganwadi worker (AWW)	21	58
	b) AWW and doctor	6	17
	c) Doctor	2	5
	d) Anganwadi helper and doctor	2	5
	4 Women procuring tablets		
	a) Through visits to		
	Anganwadi	15	47
	Government doctor	6	17
	Private doctor	2	6
	b) Through home visits by		
	Anganwadi worker	12	33
5 Number of IFA tablets received during one contact (one off take)			
a) 25	10	28	
b) 30	5	14	
c) 35	16	44	
<b>IV</b>	<b>Consumption of IFA tablets</b>		
	1 Currently consumes IFA tablets		
	a) Yes	51	86
b) No	5	14	

Sr No	Major responses	n	%
	2 Reasons for consumption of IFA tablets		
	a) Give strength	16	44
	b) Maintain strength	7	19
	c) Keep body healthy	7	19
	d) Improve appetite	7	19
	e) Increase blood in the body	5	14
	f) Feel good enough to do work	5	14
<b>V</b>	<b>Reminder to consume tablets</b>		
	1 Whether needs reminder to consume IFA tablets		
	a) Yes	15	42
	b) No	16	44
	2 Reminded by		
	a) Husband	11	30
	b) Mother-in-law / sister-in-law	4	11
	3 Type of reminder		
	a) Ask her whether she has consumed the tablets (husband and M/L)	8	22
	b) Everyday husband reminds her to consume tablets	4	11

### **Reminder to consume iron tablets**

Most of the pregnant women (72%) said that they needed to be reminded to consume iron tablets by their family members. Out of these women, 30% were reminded by their husbands and a few (11%) by their mothers in law by being asked whether they had consumed the tablets ('goliyo gali aevu pucche') or even being given the tablets by husband to consume ('ae pote mane goliyo galwa aape le aa goli gali le'). During the interviews several husbands seemed concerned about their wife's health and said that they actively encouraged them to take tablets. Interviews with 15 family members corroborated the responses of the women i.e. 60% said that they actively encouraged women to consume IFA tablets because they were aware that the tablets gave strength and improved blood. A few added that if the doctors instructed that the tablets should be consumed, the women should follow their advice.

A study by Edward Raj (1994) on urban pregnant women of Vadodara revealed that women were given a compliance calendar which served as a reminder to consume tablets everyday. This device helped to improve the compliance as evidenced by consumption of 100 doses of 60 mg iron tablets by 90% of the women.

In another study conducted in Thailand it was seen that a monthly calendar to record daily intake of iron served as a powerful motivational tool to increase iron tablet consumption. Illustration on the calendar showing that iron makes pregnant women and their babies stronger served as an important educational message (Charoenlarp et al 1988).

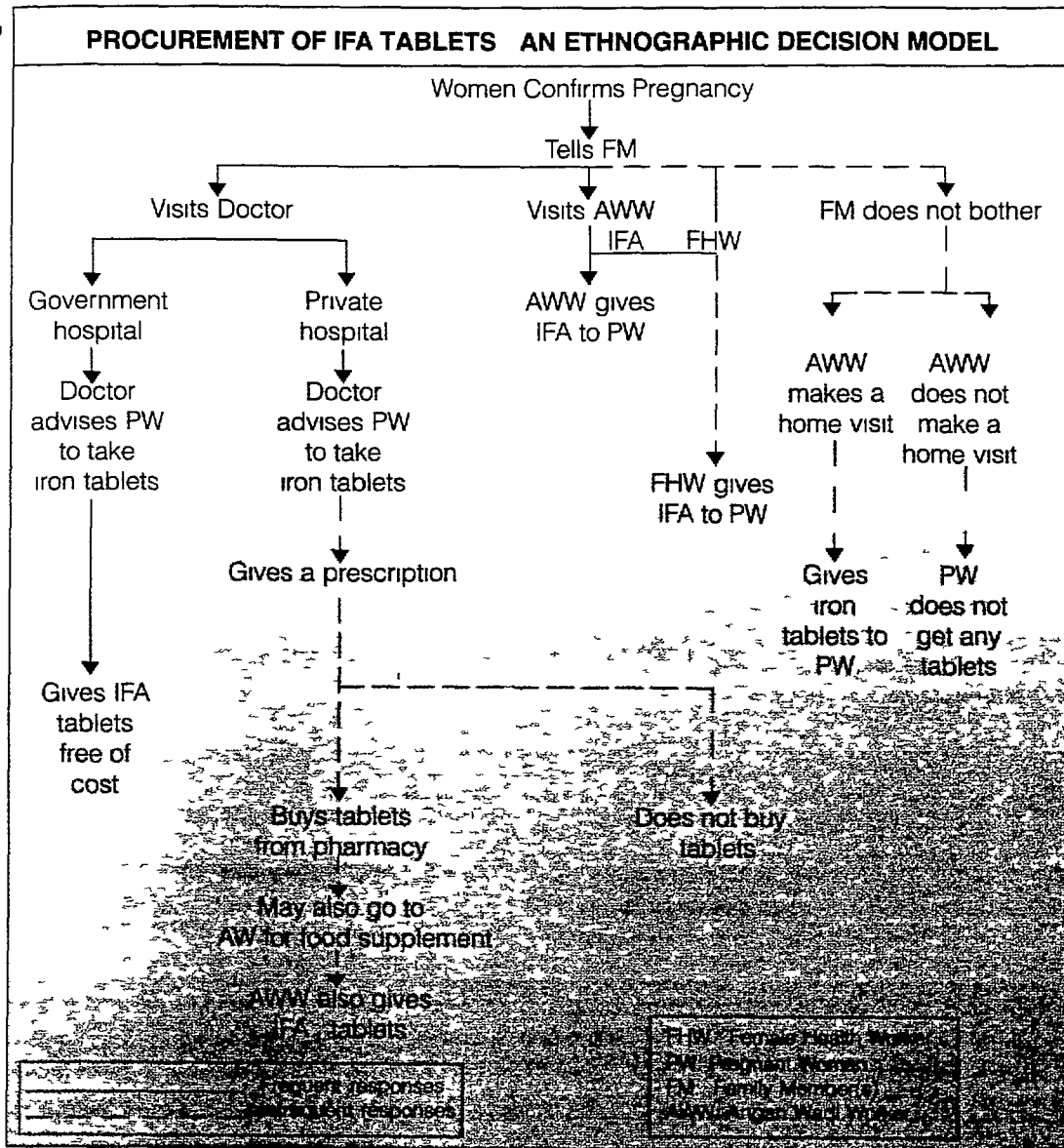
### **Number of tablets consumed**

Depending upon the month of pregnancy and number of tablets expected to be consumed in that time period, the reported data indicated that one-third women (n=10) had consumed 73% of the dose of tablets, one-fourth of them (25%) had consumed a dose of 47% and a few of them (n=3) consumed 62% of the dose of the expected tablets.

## Ethnographic decision model regarding IFA procurement and consumption related behaviour of the pregnant women

The pathway which the pregnant women took to procure the iron tablets can be explained through an ethnographic decision model (EDM) depicted in Figure 9

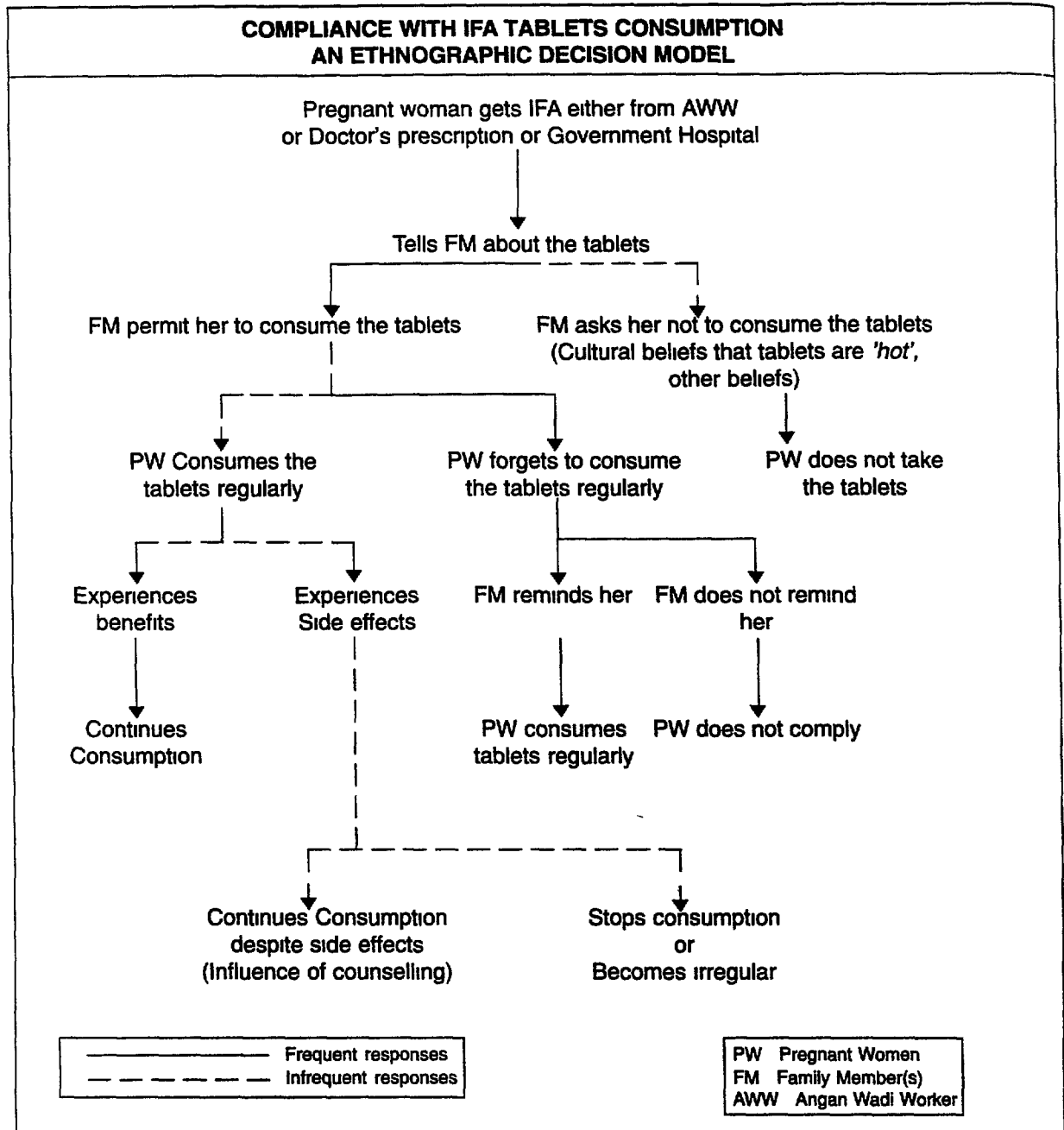
Figure 9



As a woman confirms her pregnancy she tells about it to a family member - either her husband or her mother-in-law. Sometimes the family members take her to a government or private hospital or the anganwadi or they do not bother. The latter happens rarely. At the government hospital and at the anganwadi iron tablets are provided to her free of cost. At a private hospital the doctor usually writes a prescription and the woman may or may not buy the tablets from the local pharmacy. The women who go to the anganwadi for supplementary food may also get iron tablets or women can get the tablets when the anganwadi worker makes a home visit. The women also receive iron tablets from FHWs when they visit the slums or at the MCH clinics held by the Corporation's Health Posts.

The factors influencing consumption of tablets by pregnant women can also be put in the form of an EDM (Figure 10)

Figure 10



When a pregnant woman procures iron tablets from the sources mentioned above her family members play a role in permitting her to consume the tablets. Sometimes due to the pressure from a mother-in-law because of cultural beliefs that the tablets are 'hot' or other beliefs the pregnant woman never takes the tablets. The pregnant woman who forgets to take the tablets regularly may stop consuming them altogether if there is no one to encourage her at home. If she is regular she may experience benefits or side effects and continue or discontinue to take them accordingly. Hence if she is counselled she could be encouraged to continue taking the tablets. We found in our study that periodic counselling is very important for continuation of IFA tablet consumption till the complete dose is taken. Counselling should also include enlisting support of family members.

In a recent study carried out in Vadodra Seshadri et al (1993) found that counselling the pregnant women on the beneficial effects especially the simple act of linking the relief of symptoms that troubled them in pregnancy to the consumption of the tablets helped a great deal in convincing them about the need for the tablets and motivating them to take the tablets regularly. The demand for the tablets by the pregnant women increased. Other non-target groups also started requesting for tablets.

## PHASE II

### IMPROVING THE HEALTH SYSTEM FOR BETTER ANEMIA CONTROL : THE INTERVENTION PHASE

The situational analysis carried out in Phase I brought to light several lacunae in the health system. Table 12 summarizes the drawbacks observed in the health system and the interventions planned to address them.

The low priority given to the antenatal care package of services, in particular the anemia control program, was reflected in the inadequacy of training of health functionaries, lack of clarity in job functions, irregular supply of IFA, lack of an effective distribution system for IFA, virtually absent IEC and counselling activities and absence of monitoring anemia control activities, except for recording number of women given tablets.

Using formative research data, the changes that were initiated in the health system which were based on the principle of behaviour change (See Figure 6 in Methodology) are described below.

Table 12

LACUNAE IN THE HEALTH SYSTEM AND INTERVENTIONS PLANNED	
Lacunae in the Health System	Interventions Implemented to Address them
Lack of clarity regarding job functions for ANC at all levels	◆ Formulation and dissemination of specific job functions by the health authorities to the health functionaries
Unplanned distribution of iron supplements and infrequent home visits by functionaries	◆ Streamlining the distribution system: a combination of clinic and home based approach. Minimum 3 visits and 100 tablets to each woman are emphasized
Virtually absent supervision and no monitoring of compliance with iron supplementation	◆ Changes in workload of supervisors by health officials to enable better supervision ◆ Simple modification of ANC registers and home visit registers to incorporate data on compliance (distribution and consumption of tablets)
Absence of IEC in the program Lack of counselling during tablet distribution to women	◆ Production of IEC material on anemia in pregnancy ◆ Training to FHWs and their supervisors in counselling skills ◆ Incorporation of IEC activities in routine job functions
Low priority accorded to the anemia control program in the government health system	◆ Training to increase awareness and to highlight the importance of anemia control alongwith other antenatal care services for pregnant women ◆ Intensified monitoring of antenatal care and iron supplementation by senior health officials ◆ Advocacy efforts through fact sheets, video information booklets for the State Government and urban health officials

#### □ Job functions of health functionaries

When the current job functions of the FHWs and FHSs were reviewed (Appendix 7) it was seen that the job functions mainly covered immunization and family planning related services but even these tasks were not adequately explained. The job functions did not cover specific MCH and ANC services. Functionaries were expected to fill and update various registers for 4 hours every day after doing their field work. No time scheduling (weekly or any other) was evident for carrying out specific job functions. The stated job functions of FHSs and FHWs were the same. Though the FHSs were expected to monitor and supervise the work of the FHWs, this was not clearly specified in their job tasks. In view of this, a list of job functions was drawn up together with the Corporation officials for the antenatal care services (Appendix 8). Care was taken to see that anemia control received adequate attention. The FWMO welcomed this step of specifying the job functions regarding antenatal care and anemia control as she

believed that this clarity of job functions would facilitate the health functionaries to do better what they were already expected to do. She circulated the job functions to the health staff as new guidelines by the Vadodara Municipal Corporation.

### □ **Distribution and monitoring system of IFA tablets**

Distribution of iron tablets to pregnant women was unplanned and haphazard. Home visits by the FHWs to these women's houses were infrequent. To improve upon this, an attempt was made at streamlining the distribution of iron tablets using a combination of clinic-based and home-based approach. It was emphasized in the job functions that the FHWs should make at least 3 visits to a pregnant woman's house and give her minimum 100 iron tablets. In view of the large population per worker, it was stressed that primary focus of the visits should only be in the slum areas and not well-to-do housing societies. At the MCH clinics, pregnant women should be given IFA tablets and counselled regarding the importance of consuming iron tablets during pregnancy.

Current antenatal care service registers and records were reviewed as reported earlier in the situational analysis. The FHWs did not monitor compliance of the women with iron tablets and did not have records to incorporate the information on distribution and consumption of iron tablets. Therefore, we made simple modifications in the ANC register and the home visit register with participation of the FWMO of the Corporation as shown in Appendix 9. There was no problem of supplies of IFA tablets in the Corporation. It was encouraging that after a gap of several months, the current supply of iron tablets was adequate.

### □ **Supervision**

There was virtual absence of supervision at all levels. The FHSs who were the designated supervisors of the FHWs actually performed the same tasks as the FHWs and had the same population coverage. Both time and skills for supervision were inadequate. Hence, after discussions, the Chief Medical Officer of the Corporation agreed to reduce the expected population to be covered from 10,000 to 7,000 for the FHSs and to re-distribute the remaining population to the FHWs. It was also agreed that in the training workshops to follow, supervisory skills of FHSs would be a focus.

### □ **Information-Education-Communication (IEC)**

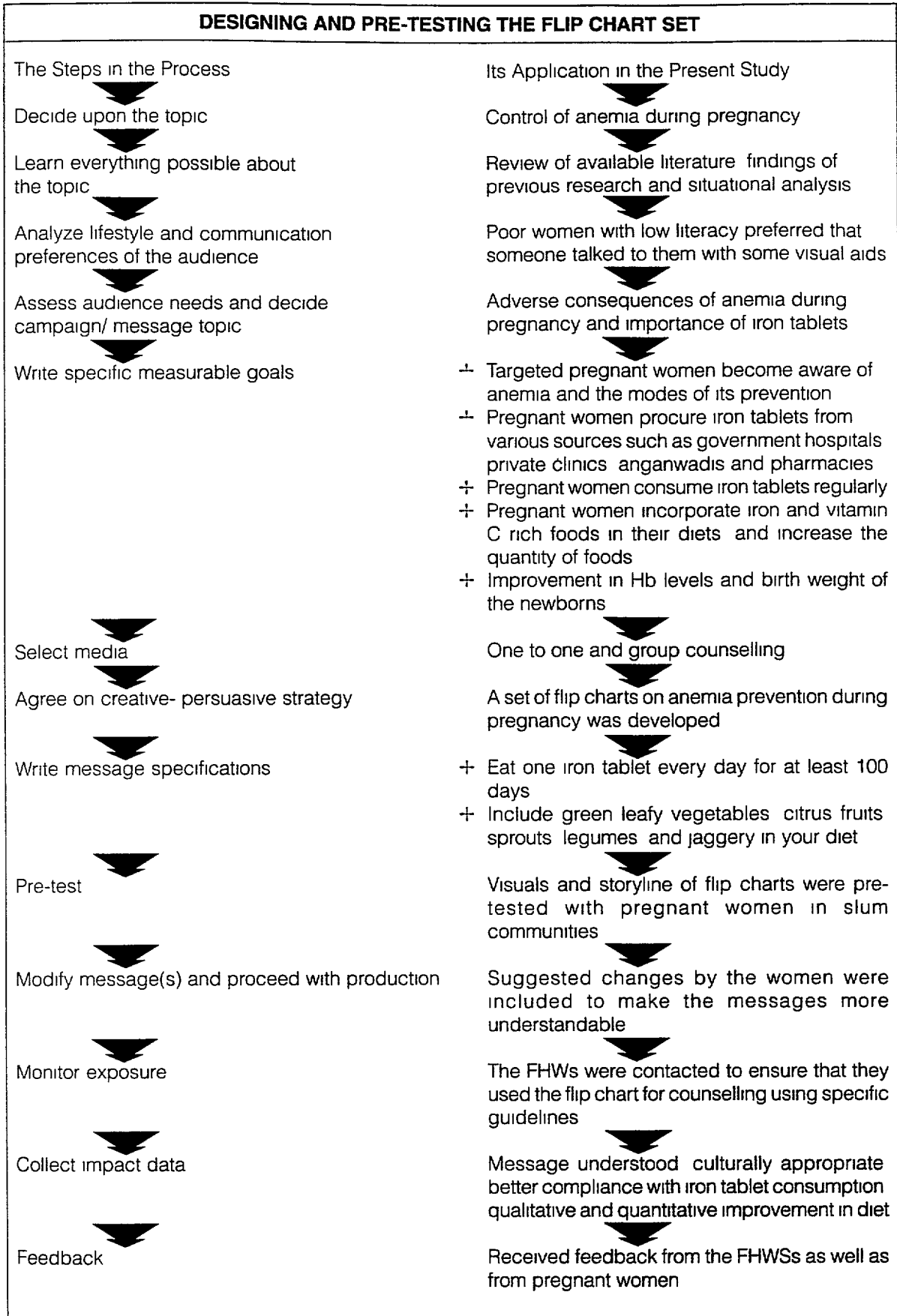
It was noted that no IEC material was available with the Corporation on anemia. Hence, a set of colorful flip charts with a simple storyline was developed for the FHWs for use as a counselling aid. To ensure that the pregnant women received and consumed at least 100 iron tablets during pregnancy, firstly a transparent plastic bottle with a slogan in Gujarati on importance of iron tablet consumption was given to each pregnant woman in the study areas. She was told that these airtight bottles were to be used for storing IFA tablets and were to be shown to FHS/FHW or project staff for tracking compliance through tablet counts. These bottles were of convenient size to enable them to be used for several purposes later, e.g. to store spices. Secondly, a compliance diary to mark the number of tablet(s) consumed every day was developed and given to each woman. Before deciding on the compliance diary, women in the selected slums were randomly asked regarding which would they prefer for marking off the dates on which they took IFA tablets - a calendar hung on the wall or a diary with multipurpose uses. Almost all the women preferred the diary. The flip chart book was pretested with several groups of women to assess the communicative effectiveness of each visual and the text. The design and production of the flip chart is explained in Figure 11, based on a framework suggested by Mody (1990). The FHWs and FHSs were trained in communication and counselling skills.

### □ **Training**

The situational analysis also revealed that training was one of the weakest components in the health system of the Vadodara Municipal Corporation. The grass roots level functionaries were not given practical training with regard to effective implementation of ACP at community level. Most were not aware of the seriousness of the problem of anemia and even those who wished to give it more attention could not do so because of other competing priorities. According to the Chief Medical Officer, the functionaries and their supervisors had not received any refresher training for a long time, hence he requested us to include all functionaries of Family Welfare Centres and Health Posts in our training to which we agreed. The overall objectives of training were two-fold.



Figure 11



Adapted from Mody (1990)

- (1) to update the knowledge of all health functionaries of the Corporation regarding anemia and sensitize them to the importance of IFA supplementation and NHE. This was done in the context of the newly initiated Reproductive and Child Health (RCH) program of the Government of India. In the RCH program ANC and anemia control are important components.
- (2) to strengthen further certain skills of FHWs and FHSs in the 2 Health Posts of OP and NY under the project in view of their job functions for enhanced anemia control activities. What follows is a brief description of the workshops.

The first workshop was held in December 1996 for 3 days. On the first day a total of 55 health functionaries took part while on the second and third day only the functionaries of the two study Health Posts - OP and NY participated for more intensive training.

In a panel discussion the Vadodara Municipal Corporation health authorities oriented the functionaries to the new thrust areas in the Family Welfare Program namely the RCH approach in which community contacts and involvement, maternal and child health and nutrition health education are important components. They urged the functionaries to improve implementation of ANC and anemia control services. An expert from the discipline of women's studies expressed concern on the gender insensitivity of health workers and stressed the need for functionaries and superiors at all levels to be sensitive to needs and constraints of women and to enlist family support for care of women during pregnancy.

Medical and nutrition experts spoke on detection and follow up of high risk pregnancies, pregnancy nutrition and anemia and amelioration measures in the context of the urban health system.

A slide show to FHWs, FHSs and LMOs brought home the causes and consequences of anemia and the various ways in which health care providers can effectively execute anemia control activities such as nutrition education and IFA supplementation. Role plays were done by the FHWs to highlight problems faced in the field and to build their skills in communicating with women and involving families.

In separate Focus Group Discussion, LMOs, FHSs and FHWs forcefully highlighted constraints which they faced and which obstructed good quality implementation of antenatal care services which primarily related to inadequate administrative and supervisory support from authorities and the large population size to be covered by each functionary in crowded slums. In our subsequent feedback sessions we discussed ways and means of improving ANC and anemia control within the limitations of the health system.

Resource material in the form of an illustrated booklet in Gujarati (local language) was developed and given to each participant during the workshop titled 'The New Family Welfare Program - Let us make ANC services more effective (A guide for the FHWs)'. This booklet included the following topics:

- 1 Early registration of pregnant women
- 2 Health check up
- 3 Referral services
- 4 Supplementation with iron folic acid tablets to control anemia
- 5 Monitoring weight gain during pregnancy
- 6 Immunization against tetanus toxoid
- 7 Health and nutrition education
- 8 Home visits for follow up care and counselling

Under each of these topics basic information was given along with what the FHW was expected to do under each service.

In the second workshop held in January 1996 the FWMO and the project staff jointly explained in detail the revised job functions for antenatal care and anemia control to the FHWs. Further the functionaries of Health Posts OP and NY (FHWs, FHSs and LMOs) were given more intensive training and supportive inputs regarding enhanced antenatal care and anemia control through measures such as improved procurement and distribution of iron tablets, nutrition health education and one-to-one counselling of pregnant women, better monitoring and supervision. They were also trained in communication skills using the flip book prepared on anemia. A co-ordination mechanism was set up wherein the project staff could continuously interact with the 2 Health Posts staff to monitor progress of the interventions especially improvements in quality of care of the Anemia Control Program.

# INTERVENTION PHASE IN PICTURES

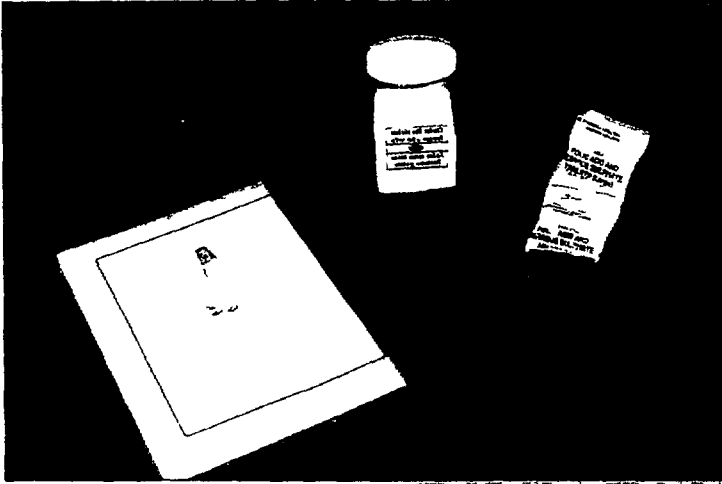


*To much register work ?*

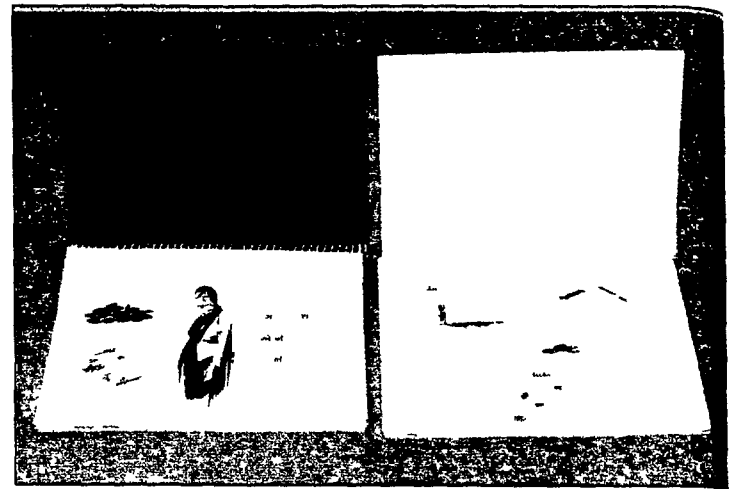


*Supervision  
Is checking of registers  
enough ?*

## INTERVENTION PHASE IN PICTURES



*IEC material Storage Bottle  
and Compliance Diary*



*Flip Chart on Anemia*



*Counselling through Flip Chart on  
dietary change and IEA  
supplementation*

## PHASE III

# RESPONSE OF THE HEALTH SYSTEM TO THE INTERVENTIONS FOR IMPROVING ANEMIA CONTROL - A PROCESS EVALUATION

## A Health Service Providers

Process evaluation of the interventions was carried out in the following ways

- ◆ Follow up visits to the 2 Health Posts and Direct Observations of health functionaries at work
- ◆ Supervision and Monitoring - Checking of records and registers maintained by the FHWs and FHSs and observations of the monthly meetings at the Family Welfare Bureau

### ◆ Follow up visits to the 2 Health Posts

Follow up visits to the Health Posts OP and NY aimed at assessing whether the health post staff could operationalize the modified strategies for improving the ACP (for which they had been trained) within the context of their overall responsibilities and the system in which they worked. During the follow up visits to the Health Posts informal conversations were carried out with the FHWs and FHSs. Their frequent responses to us as we interacted with them during the period February 1997 to February 1998 are summarized below with our comments in parentheses

- *We have a lot of work such as surveying our areas filling up various registers (Appendix 4) visiting slums for distribution of iron tablets ORS sachets oral pills and condoms and immunizing children. We have a large population (approximately 10 000 per worker) to cover and unless it is reduced it is impossible for us to do good quality work and achieve the family planning targets. In fact clarifying our job functions has increased our work* (This statement was made despite the fact that the LMOs and the FWMO herself reiterated to them several times. These activities (in ANC and ACP) are nothing new you are any way expected to perform them.)
- *We are constantly busy with so many unexpected unplanned activities to perform in between our routine work because of number of vertical campaigns or other programs such as pulse polio campaign school health program malaria control program and leprosy elimination campaign. These programs take up a lot of our time as we have to plan before for the program and do pre-program preparation. During the implementation all our time is devoted to it and after the program gets over we prepare the reports. Also we have our routine activities such as completion of family planning targets arranging medical camps and routine immunization work. So where is the time to use the flip chart on anemia or to write in the daily diaries? We cannot make any schedules for our work. We do not even remember what we did last week. Why don't you see our movement register? Our daily diary jottings are also transferred to the register* (The movement register was supposed to be filled every time the FHWs/FHSs went out of the Health Post for some work. This included visits to their respective field areas and to private practitioners clinics/hospitals for taking down the number of family planning operation cases. In the movement register we noted that the health functionaries had put their names against the date time and the place where they were to go along with the purpose. Sometimes only the name of the area was filled and purpose of visit was missing. Further usually the time when they returned to the Health Post was not filled in any entry. Our observations revealed that many a times an FHW asked another FHW to fill the movement register for her.)
- *Pregnant women in the slums do not consume the iron tablets even though we make visits to their houses. Some women do not take iron tablets at all because they are ignorant have cultural beliefs and sometimes their mothers in law do not permit them to take the tablets* (However though this was partly true our direct observations of functionaries and interaction with women described later revealed that contacts with women and counselling efforts were few and far between.)

The FHWs also mentioned a lot of vertical campaigns which came off and on and disturbed their routine work (Appendix 10). A typical day of an FHW in between vertical programs is discussed in Appendix 11

## ◆ Direct Observation Method for Time and Activity Patterns of the Functionaries

Direct observations helped us to verify reported data and also gave additional insights regarding the work organisation and time scheduling of the functionaries and the importance given to antenatal care and nutrition related activities in their routine work. The observations were carried out in 2 weekly cycles.

Our observations threw light on the nature of functioning of LMOs, FHSs and FHWs as summarized below.

1. Many of the health functionaries (FHWs, FHSs and LMOs) did not come on time (9 am) to the Health Post. On most days the LMOs did not come at 9 am and they left early. The FHWs and FHSs left at 5 pm on almost all days but often during the afternoon they did not do any work and chatted with each other till 5 pm. All the Health Post staff took at least a day's leave during the week-long observation period.
2. One Health Post suffered from staff shortage as 2 FHWs were transferred to another Health Post. The FHW who was transferred to this Health Post was not familiar with the field area so had to spend time in building rapport with the community.
3. Considerable time was expended in completing entries in a lot of registers with FHWs often transferring beneficiaries' names from one register to another. In one Health Post the staff spent an entire week preparing their monthly report. As their LMO was absent the FHW tried to prepare the report but got confused about what to fill in and hence she asked for advice from her colleagues and filled in whatever she could in places entering incorrect information.
4. The opinion of some FHWs regarding the new target free approach (TFA) was "TFA toh matha ni dava chhe" (TFA is a headache to us). This was because they were not given any training regarding what RCH was all about and were still expected to prepare their action plans, for the TFA approach.
5. At the Health Post where the vaccinator did the vaccination he came only for 2 hours during the vaccination period and the FHWs were dissatisfied that nobody said anything to him despite the fact that he did not come for the specified period of time.
6. In one instance a woman from nearby slum came for CuT insertion. Because the LMO was absent the FHS inserted it and told us that she would write it for the doctor as the FHS was not supposed to do it in the doctor's absence.
7. As regards iron tablet distribution, iron tablets were observed to be given to women only during the MCH clinic and rarely through home visits.

We also carried out observations at the 2 Health Posts during two campaigns. These were Pulse Polio Campaign in January 1998 and the Modified Leprosy Elimination Campaign in February 1998. These are narrated in Boxes 1 and 2.

Box 1

### **PULSE POLIO NATIONAL PROGRAM INTENSIVE WORK BUT LITTLE SUPERVISION**

For this the FHWs had received a list of area centers for the campaign and a list of private practitioners in their areas. On the previous day of the program, the FHWs went to the private practitioners' places and gave them oral polio vaccine (OPV) bulbs according to their requirements. They also stuck areawise labels on the vaccine carriers. The next day they came at 6 am in the morning, filled up the vaccine carriers with OPV bulbs and ice packs. These along with pulse polio banners and tally sheets were given to volunteers who were sent to various centers in a vehicle under the supervision of the FHS. Two FHWs went to their field areas and two other waited at the Health Post. They had to go and call children from nearby areas for vaccination.

The LMO of the Health Post along with 2 LMOs from other areas remained inside the Health Post not engaged in any useful activity. They did not supervise or check the progress of the vaccination camp which lasted till 5 pm.

The next day the LMO was on leave. The FHWs did nothing in particular for a long time, and later on they emptied the vaccine carriers and put together the tally sheets. The remaining days of the week were spent on compiling the monthly report. The LMO was on leave for all the remaining days.

**MODIFIED LEPROSY ELIMINATION CAMPAIGN THEY HAVE TO DO IT BUT HOW?**

On the day prior to the commencement of the program, the LMO of the health post was on leave. Hence the LMO of some other Health Post came to discuss about the areas to be allotted to each health worker which led to confusion among the FHWs. The FHWs had not been given any training regarding identifying people affected with leprosy, yet they were told to identify and refer cases for treatment. As one FHW said ironically, "Amne badhu j aavde chhe" (We know everything)

On the actual day of the campaign the LMO was present but 2 FHWs were absent. Also only 3 instead of 10 sanitary inspector course students came to help the FHWs. These students were from South India and did not know the local language Gujarati or even Hindi, hence as one FHW said, they were of no help to them. As she said - "Putla ni jem mari sath ubha raheshe" (They will stand like statues with me). She added that people fluent in the local language and accustomed to surveying slum communities should be assigned for the job as the issue of leprosy was very sensitive.

The FHWs were given picture booklets to help them identify the signs of leprosy. They were also given certain proformas to fill. The FHWs had to go to ICDS Anganwadis of different areas from where the ICDS AWW and the helper were to take them to the community. As the FHWs did not know the locations of the Anganwadis and the AWWs they had to depend on the ICDS supervisor. The areas allotted to the FHWs for the leprosy survey were not the same in which they usually worked. So they were not familiar with these different communities and had to depend on the AWWs and helpers for their work.

#### ◆ Direct Observations of MCH Clinics

Direct observations were carried out during 8 MCH clinics in operation for 8 days at the 2 Health Posts. These weekly clinics lasted for about 3 hours from 9 am to 12 pm. It was observed that women mostly came to the clinics for immunizing their children. Only a negligible number of women came to the clinic for antenatal checkup and those who did come mainly for taking the anti-tetanus toxoid injection. The main reason why women did not visit the clinic for antenatal checkup was that they were not aware that this facility was available at the Health Post. Most of them went to private practitioners for antenatal care. This became more evident in the exit interviews of the women.

When a woman visited the clinic the FHWs gave a packet of iron tablets containing 25 tablets, a packet of ORS and a pack of condoms. They did not give any advice regarding iron tablets. Most of the conversation focused on contraceptive use and advice.

At one Health Post the vaccinator administered the vaccines whereas in the second Post the FHWs took turns to vaccinate the children. They complained that they had to do the vaccinator's job.

#### ◆ Supervision and Monitoring - Checking of records and registers maintained by the FHWs and FHSs and observations of the monthly meetings at the Family Welfare Bureau

As mentioned earlier the ANC register was slightly modified to include information on distribution and consumption of iron tablets. Columns of ANC register are given in Appendix 10. However during the observations and follow up we found that the ANC register columns suggested by us and the corporation health authorities were not filled. They only mentioned that iron tablets were given to a particular pregnant or lactating woman but did not specify the number of packets/tablets given to the women.

#### ◆ Observation of Monthly Meetings

The staff of all Health Posts attended a meeting on second of every month at the Family Welfare Bureau. The purpose of these meetings was the assessment of work carried out by the Health Posts in the previous month. They also received their salaries on this day. We observed that the Family Welfare Medical Officer asked FHSs of each

center only regarding their performance of family planning activities and survey of households in their respective areas. She did not ask about other MCH activities especially distribution of iron tablets to pregnant women. Regarding immunization she told them to vaccinate children and women whereas often the vaccinator did not arrive at the health posts. One FHW angrily commented *Kitna bhi kiya to daant milti hain Sab FP ka hi dekhte hain Kitna clinic kiya kitna iron diya koi nahin poochhta* (How much ever (work) we do we get scolded. Everybody asks about family planning targets achieved. No one asks about how many (ANC) clinics we have conducted or how many iron tablets we have distributed).

In one such meeting towards the end of the financial year review of the activities of the health workers during the year was done. Statistics regarding total number of IUD insertions and family planning operation cases and total number of oral pills and condoms distributed was presented and discussed. No statistics were mentioned regarding distribution of iron tablets. The FWMO noted that the level of family planning activities carried out during the past 10 months was very less. She instructed workers to increase the activities in the month of February and March. She also stated that higher authorities were not pleased with the statistics of the family planning activities carried out. Further she mentioned that according to the reports obtained from MotherCare project staff the monitoring was poor. Hence she emphasised that monitoring should be stressed upon. In her words "Monitoring is missing from the top level. I have reduced the workload of FHSs from 10 000-12 000 families to 6000-7000 families, yet the FHSs are not monitoring the activities of the FHWs".

## **Moving Ahead Evolving systematic work plans for the FHWs jointly with the FWMO of the VMC**

As the FHWs were not making the appropriate number of visits to their allotted field areas and not performing several of their functions for various reasons a need was felt to have work plans for the FHWs containing proportionate distribution of their time for major tasks so that they could give balanced attention to all their respective job functions including antenatal care, iron tablet distribution and counselling. The plan was made jointly with the LMOs on the basis of the FHWs weekly workload which comprised approximately 40 hours. Out of these 40 hours it was stated in the plan that 50% of the time be allotted to providing various services, 20% to community surveys, 10% to record keeping and the remaining 20% of time was kept for miscellaneous work such as meetings, campaign programs and health camps. The outline of this plan is given in Appendix 12. The FHWs were asked by the LMO of the health post to make their individual plans and implement them from October 1997 onwards. The FWMO supported this endeavour. It was encouraging to note that even after allowing for various monitoring related tasks and unexpected programs about half of the time of health workers could still be devoted to delivery of services target groups.

## **B The Beneficiaries**

### **◆ Receipt of Services by Pregnant Women in Slums**

Fortnightly visits made to the pregnant women's houses who were enrolled in the study over one year revealed that the FHWs and FHSs rarely visited nearly half of the study areas. In 3 areas the women did not even know the name of the FHW visiting their areas.

### **Antenatal Care**

Nearly half of the women visited government hospitals or private practitioners for antenatal checkup and some of them did not visit the doctor at all. As evident from the interviews in the situational analysis most women and their families consider that registration of pregnancy with a health facility is necessary only for delivery purposes, very few believe regular antenatal care is important. Many women said in the exit interviews (discussed later) that they were not aware of this facility being available at the Health Posts and that they visited the Health Posts chiefly for immunizing their children.

As regards receipt of iron tablets, women in 4 areas received tablets from the ICDS Anganwadi Worker. As discussed in the previous phase, in the other areas the FHWs did not give any iron tablets to replenish the ones which the project staff had given in their first visit to the pregnant women through home visits made along with the FHWs. Most of the women did not fill up the compliance diary as they either forget about it or did not feel the need. The FHWs did not do any follow up regarding this.



### ◆ Exit interviews of the pregnant and lactating women who visited the MCH clinics

In order to assess the type and quality of antenatal care given through the Health Posts a total of 148 exit interviews were conducted with pregnant and lactating women who visited the MCH clinics at Health Posts OP and NY. Specifically the purpose of these exit interviews was to elicit information from the women regarding the types of services and advice received by them at the clinic especially with regard to ANC services and IFA supplementation.

After a few interviews it became evident that rarely do pregnant women come to the clinic but several lactating women come for their child's immunization. Hence it was decided to conduct exit interviews with lactating women to find out what services they received during their pregnancy in the recent past. Results of the exit interviews are summarized below.

It was found that out of the 148 women 14 were visiting the Health Post for TT immunization during their current pregnancy and the rest were mostly lactating women who came for vaccinating their children. As regards the lactating women (having children below 1 year of age) only 11 had visited the Health Post during their pregnancies. Thus out of the 148 women interviewed only 25 (17%) women visited the Health Posts during pregnancy for TT vaccination (n=12) and for checkup and TT vaccination (n=12) and for checkup only (n=1). Of these 25 women a majority (n=11) had visited the clinic only once 8 twice and 6 of them came to the clinic thrice or more. The women visited the MCH clinic mostly during late second trimester or third trimester. Many of them did not know that antenatal checkup was done at the MCH clinics as evident below in their own words.

*Ahi tapas thay chhe aevu khabar j nathi balak ni rasi muke chhe etli khabar chhe*  
(I did not know at all that ANC checkup is done here I only knew that child immunization is done)

The exit interview data clearly reveals that the weekly MCH are really child immunization centres where care of women is neglected. The community perceives these clinics as a place where children are supposed to be brought for immunization. Of the few women who are aware that antenatal care is a function of the clinics many do not come for reasons such as temporary absence from home as women go to their parents' place for delivery preference for private health care due to its better quality. A few women in the exit interview did say however that FHWs and LMOs asked them to come to the centre for ANC checkup immunization and IFA tablets (See Box 3).

Box 3

#### REASONS WHY WOMEN DO NOT COME FOR ANTENATAL CARE TO THE GOVERNMENT CLINICS - THEIR VOICES

*"Khabar hati ahin tapas thaay chhe pan gamde suvavad mate gayi hati"* (Knew that ANC services are provided but I had gone to my village for delivery)

*"Private mein kabhi bhi ja sakate hai yahan time to time aana padta hai aur line bhi hoti hai kaun baithe itni der tak?"* (In private clinics we can go any time here [health post] we have to come at specified time also we have to stand in queue, who will wait for so long)

*"Khangī ma saroo chhe dhyan aape chhe"* (It is good in private they pay attention)

*"Bahoo dur chhe aava javama bahoo paisa jaye chhe"* (The health post is very far, so it becomes expensive coming and going to the health post)

*"Kasuvavad bahu thayi, etle khangima tapas mate gayi hati"* (Had many miscarriages, so went to a private hospital for my checkup)

Receipt of IFA Tablets from Health Workers by the 25 Women who came for Antenatal Care			Consumption of IFA Tablets by the 22 Women who received IFA at MCH Clinic		
	N	%		N	%
Received IFA			<input type="checkbox"/> Consumed negligible	10	45
<input type="checkbox"/> Received 25 tablets (56%)	22	88	<input type="checkbox"/> Consumed 25 to 100 IFA tablets	12	54
<input type="checkbox"/> Received 50 tablets (32%)			<input type="checkbox"/> Completed the full course of IFA tablets	0	0
Out of these 25 women did not received IFA					
<input type="checkbox"/> Received 25 tablets	7	32			
<input type="checkbox"/> Received 50 tablets	8	36			
<input type="checkbox"/> Received 75 tablets	4	18			
<input type="checkbox"/> Received 100 tablets	3	14			

With regard to MCH clinics as a source of IFA tablets women who come to clinics do receive the tablets but rarely the full course firstly because they do not make the requisite number of clinic visits and secondly home visits are infrequently made by the FHWs. Shortage of supply of IFA is a problem but less so erratic distribution because of low priority of this program was a more important factor. Among the women who received tablets consumption of tablets varied from negligible to the full course. One reason could be the several misconceptions regarding the tablets and lack of counselling as evident from exit interviews.

*Mane kidhu ke shakti ni goli chhe ratre janya pachhi levani*  
(I was told that they are strength giving tablets to be consumed after dinner)

*Koi salah nathi aapi lakhwama padya chhe*  
(No instructions were given they are busy writing)

*Khali goli aapi kasu kahyu nathi*  
(They just gave tablets didn't give any instructions)

Direct observations of the MCH clinics described in the earlier section corroborated the data of the exit interviews given by the women.

#### ◆ Compliance with IFA supplementation

Fifty women were followed up till delivery through regular home visits every 15 days. These women had been on enrolment provided with fifty iron tablets (half of the recommended dose) in a plastic bottle with a message on it along with a compliance diary for recording the number of days IFA was taken. On the first visit data were collected on the number of tablets consumed by the women thus far. According to the specified job functions and training imparted on antenatal care regular visits to these women were supposed to be done by the selected Health Post FHWs for giving IFA regularly and for counselling and motivation to the women to consume them. However the FHWs were involved in a number of vertical campaign programs and surveys as described earlier and hence they made infrequent field visits to pregnant women. The project staff however visited these women to collect data on the number of tablets available and consumed till 32+ weeks of gestation. The total number of iron tablets consumed before enrolment and at follow up provided information regarding the consumption of iron tablets throughout pregnancy. Table 13 shows that the mean number of iron tablets consumed by the women increased with gestation. The mean intake at enrolment (20-24 weeks of gestation) was only about 13 iron tablets and it increased approximately to 60 iron tablets till the final follow up. The increase in compliance to iron supplementation might have been due to the fact that the women received these tablets at the homes and also the motivational slogan on the bottle given for storing the tablets.

In the present study majority of the women (56%) reported that they had consumed all the 50 iron tablets provided by the project staff. The FHWS were supposed to provide iron tablets to the women during the home visits. In absence of this only 24% of the women consumed more than 80 iron tablets by procuring the remaining dose of iron tablets from different sources such as Anganwadi, private hospitals and Government hospitals. Among the women consuming more than 50 iron tablets the major source of procurement was Anganwadis and health centres.

run by the Baroda Citizens Council (BCC) Out of the ten women who had consumed twenty iron tablets or less eight of them had gone out of station to their parental homes during the 2nd and 3rd trimesters and two of them had stopped consuming iron tablets due to side effects such as vomiting nausea and constipation Nutritional Status of Pregnant Women in the Study Areas

Table 13

CONSUMPTION OF IFA TABLETS AS REPORTED BY THE PREGNANT WOMEN (N=50)							
Sr No	Number of Tablets	Women Consuming the Tablets					
		At enrolment (A)		At follow-up (B)		Throughout the pregnancy (C)	
		n	%	n	%	n	%
1	1 - 20	37	74	15	30	10	20
2	21 - 40	6	12	7	14	5	10
3	41 - 60	5	10	13	26	14	28
4	61 - 80	1	2	10	20	9	18
5	81 - 100	1	2	4	8	6	12
6	>100	-	-	1	2	6	12
Mean number of tablets consumed (Mean±SE)		13 26±3 19		44 22±4 86		57 48±5 48	

## Nutritional Status of Pregnant Women in the Study Areas

### Prevalence of Anemia

Fifty women were followed up till delivery through home visits. There was only a marginal increase in mean hemoglobin values from 9.07 g/dl at enrolment to 9.56 g/dl towards the end of pregnancy which was found to be non-significant ( $P>0.05$ ). The poor impact of IFA supplementation is not surprising given the fact that after the initial supply of 50 tablets the FHWs or FHSs did not ensure continuity of supply. Women procured tablets from multiple sources but given the lack of counselling IFA compliance was not satisfactory.

The intake of the different doses of iron tablets was compared with the hemoglobin levels as represented in Table 14. In each group of women consuming different doses of iron tablets there was a rise in mean hemoglobin at follow up as compared to that at enrolment except in one group (consuming 61-80 iron tablets). However the mean hemoglobin of all the women (N=50) at follow up was not significantly higher than that at enrolment. It is evident that an average intake of around sixty iron tablets was not sufficient to improve the hemoglobin levels of the women. With regard to prevalence of anemia though the overall prevalence remained the same there was an upward shift in hemoglobin levels that is proportion of severely anemic women reduced and that of mildly anemic women increased (Table 15).

A multi-centric study conducted by ICMR (1991) also reported that a majority of the women (80%) had consumed less than or 60 iron tablets and the iron status of the women did not improve.

In a sub study of this project on 20 pregnant women reported separately it was found that regular fortnightly visits and counselling using flip charts not only improved procurement and compliance but also significantly improved the hemoglobin level of these women (Kanani and Patel 1998).

Table 14

THE MEAN HEMOGLOBIN OF PREGNANT WOMEN CONSUMING DIFFERENT DOSES OF IFA SUPPLEMENTATION					
Sr No	Number of tablets consumed	Pregnant women consuming the dose		Hemoglobin (g/dl) (Mean±SE)	
		n	%	At enrolment (A)	At follow-up (B)
1	1 - 20	10	20	8 73±0 50	9 23±0 20
2	21 - 40	5	10	9 39±0 79	11 14±0 55
3	41 - 60	14	28	8 90±0 45	9 20±0 40
4	61 - 80	9	18	9 28±0 41	9 27±0 606
5	81 - 100	6	12	9 52±0 62	10 16±0 55
6	>100	6	12	9 05±0 72	9 44±0 22
Mean Hb ± SE				9 07±0 21	9 56±0 19
t value				1 85 <sup>NS</sup> (A vs B)	

<sup>NS</sup> Non Significant

Table 15

SEVERITY OF ANEMIA AND MEAN HEMOGLOBIN LEVELS AT ENROLMENT AND FOLLOW UP IN THE PREGNANT WOMEN (N=50)				
Severity of Anemia	Enrolment (A)		Follow up (B)	
	n	%	n	%
Mild <sup>1</sup>	23	46	31	62
Moderate <sup>2</sup>	14	28	13	26
Severe <sup>3</sup>	7	14	-	-
Overall anemia prevalence	44	88	44	88
Normal <sup>4</sup>	6	12	6	12
Mean ± SE				
HB levels	9 079±0 217		9 561±0 197	
Paired 't between means	1 85 <sup>NS</sup> (A vs B)			

<sup>NS</sup> Non significant at 0 05 level of significance

<sup>1</sup> Mild anemia Hb 10 00 to 10 99 g/dl

<sup>2</sup> Moderate anemia Hb 7 00 to 9 00 g/dl

Severe anemia Hb < 7 00 g/dl

Normal Hb ≥ 11 00 g/dl

## Anthropometric profile of the women and birth weights of newborns

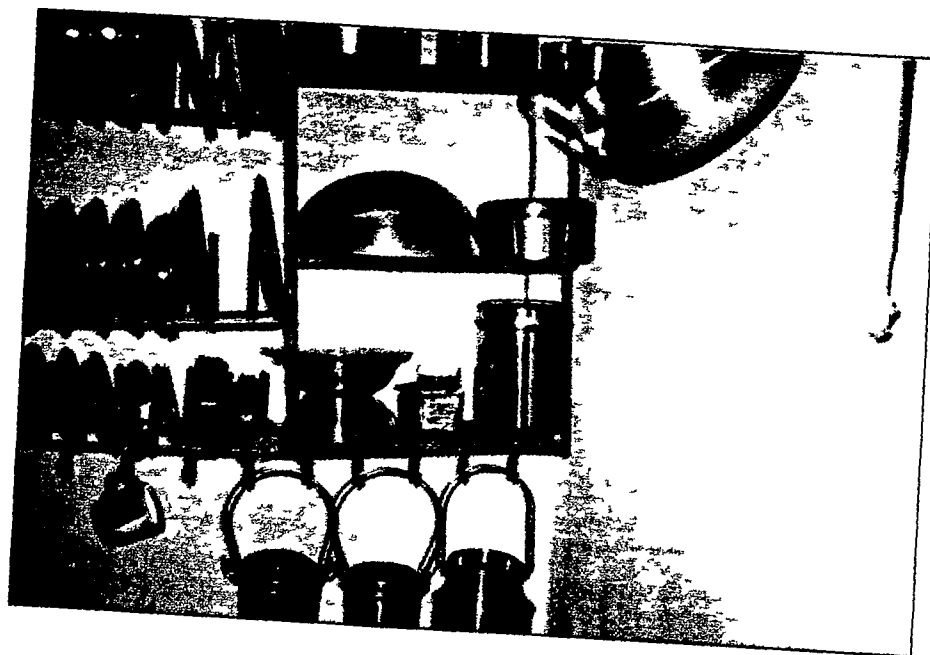
Tables 16 show the anthropometric measurements of the pregnant women at enrolment and follow up. Weight gain during pregnancy reflects the nutritional status of the women and is also an important determinant of pregnancy outcome. A majority of the pregnant women (56%) had total weight gain of less than 5 kg. The mean weight of the pregnant women at enrolment and follow up was 47.40 kg and 51.77 kg respectively, an average gain of 4.3 kg which is extremely inadequate. However, very few women were below 40 kg, which is the cut-off level used to indicate obstetric risk. The mean BMI increased at follow up from 20.3 to 22.4 and proportion of women having low BMI values also decreased as seen in Table 16. Overall, undernutrition is a major problem in pregnancy and needs urgent attention. In view of the continuing high prevalence of anemia and poor weight gain in pregnancy, it is not surprising that 40% of newborn babies had birth weight of 2.5 kg or less.

Table 16

ANTHROPOMETRIC PROFILE PREGNANT WOMEN AT ENROLMENT AND FOLLOW UP AND BIRTH WEIGHT OF NEWBORNS (N=50)				
Measurements	Enrolment		Follow up	
	n	%	n	%
Weight				
<40	10	20	3	6
≥40	10	80	47	94
Mean Weight ± SE	47.40 ±1.369		51.770 ±1.444	
BMI				
<18.50	17	34	6	12
≥18.50	33	66	44	88
Mean BMI ± SE	20.720 ±0.542		22.660 ±0.573	
<b>Weight Gain (Kg)</b>		n		%
<5		28		56
5-6.9		14		28
7-8.9		6		12
≥9		2		4
Mean weight gain (Mean ± SE)		4.540±0.318		
<b>Birth weight of newborns (Kg)</b>		n		%
< 2.50		10		20
2.50		10		20
>2.5		30		60
Mean birth weight (Mean ± SE)		2.872 ± 0.91		

**Summing up** the data on nutritional status profile of pregnant women in the study areas, it emerges that not much improvement took place in the hemoglobin or weight gain values towards the end of pregnancy, which is a cause for concern. Improvement in nutritional status cannot be expected to take place without the active intervention of the health service providers, which we saw was missing in the study.

## PROCESS EVALUATION IN PICTURES



*Pregnant women used  
the bottle for storing  
tablets*



*but kept the Compliance  
Diary tucked away safely in a  
trunk!*

## PROCESS EVALUATION IN PICTURES

*Too many vertical campaigns - Poor MCH Services*



*The Leprosy Campaign*

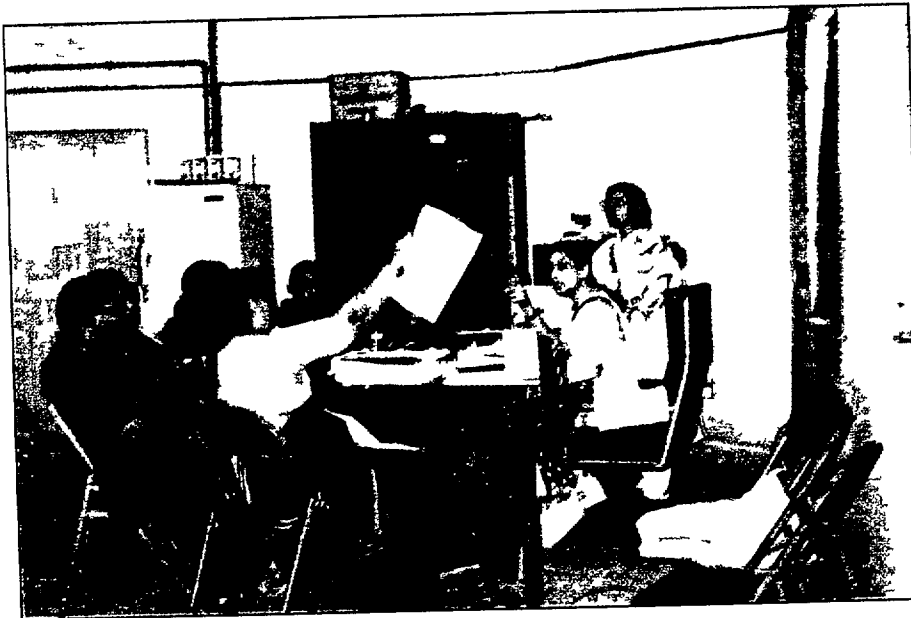


*The Pulse Polio Campaign*

**PROCESS EVALUATION IN PICTURES**



*An MCH Clinic in progress -  
Child Immunization is the focus*



*Monthly review  
meeting at the Family  
Welfare Bureau -  
Vadodara Municipal  
Corporation*



## PHASE IV

### FROM PROGRAM IMPLEMENTATION AND EVALUATION TO ADVOCACY : THE NEXT STEP

Through our iterative and cyclic process of learning and action we realized that while the urban health departments in cities such as Vadodara are viewed by the State Government as autonomous bodies nevertheless they are expected to follow the plans and deadlines set by the State Government. There was a view point in the Family Welfare Department that expectations from State Government were not matched by support to urban areas by way of training IEC material or other resources. The implications for the Anemia Control Program were that if State Government priorities are different even if the Urban Health Department of the Vadodara Municipal Corporation (VMC) wants to give more attention to pregnancy care and anemia it may be unable to do so. Further the newly initiated Reproductive Child Health (RCH) program had brought with it its own questions and lack of clarity regarding its field level implementation and the priority it gives to nutrition and anemia control in pregnancy. Strategically we realized that unless the critical importance of anemia for RCH is brought to the forefront this disorder will continue to get neglected.

Hence we decided to initiate advocacy efforts in the State Government by firstly understanding the view point of the government regarding importance of anemia control for Reproductive and Child Health (RCH) and secondly by having a dialogue with the government to ensure that anemia control measures do not get neglected in RCH. This process of dialogue was greatly facilitated when we invited the Government of Gujarat (GOG) Health Department officials and UNICEF (Gujarat) to assist us in making a video on Anemia Control in Pregnancy. Specifically we invited their detailed comments on the script for the video and requested them to appear in the video to impart actionable messages to health workers and supervisors at all levels on behalf of the government keeping in view the overall aim of better field level implementation and improved quality of care of the anemia control program.

#### THE MAKING OF THE VIDEO ON ANEMIA CONTROL A GLIMPSE AT THE PROCESS

##### Aim

- (a) To sensitize health program implementors regarding importance of controlling pregnancy anemia especially in context of RCH
- (b) To give specific messages on how the quality of field level implementation of ACP can be improved at all levels from Community Health Workers to Chief Medical Officers

##### The Process

- (1) Based on the objectives of the video the current field level implementation of anemia control program and improvements required in the health managerial system a draft video script was prepared along with a plan of accompanying visuals
- (2) The script was discussed at length in two meetings with all the state health department personnel participating actively from the senior most level onwards. The UNICEF Program Officer (Health) of Gujarat also gave his valuable inputs
- (3) The content underwent considerable revision based on GOG and UNICEF comments keeping in view the central aim that messages for improving quality of care of anemia control program should be effectively communicated
- (4) During video shooting all the key health department officials of GOG willingly agreed to give their views on camera to endorse that anemia control is indeed important and to give specific messages to the health staff regarding improvement in its implementation

The video was shown at a dissemination workshop where results of our HSR study were shared with Government and NGO personnel as well as staff of academic departments of M S University of Baroda

## **NUTRITION AND REPRODUCTIVE CHILD HEALTH - FUTURE DIRECTIONS**

### **A DISSEMINATION WORKSHOP**

A two day workshop was held in October 1998 in partnership with Women's Health Training Research and Advocacy Center (WOHTRAC) project of Women's Studies Research Center (WSRC) and with technical support from the Department of Foods & Nutrition M S University of Baroda to disseminate the findings of the present MotherCare supported project and to discuss implications for action to improve maternal nutrition in the Reproductive and Child Health Program. A discussion paper\* on nutrition - RCH was circulated to all participants which

- ◆ elaborated on how nutrition care is critical for RCH critiqued the RCH document of the Government of India with respect to the nutrition component and
- ◆ highlighted areas calling for improvement especially monitoring of nutrition programs for women and children in the overall health system

Figure 12 gives a summary picture of Nutrition - RCH linkages

Also disseminated at the workshop was a set of five fact sheets\* entitled "Control of Nutritional Anemia is essential for Reproductive and Child health". The fact sheets presented a summary picture on specific aspects and were entitled

- Anemia Prevalence Causes & Consequences
- Anemia Interventions for Control
- Starting Early for Addressing the Problem of Anemia Focusing on Adolescent Girls
- Anemia A Part of the Problem of Malnutrition
- Improving Quality of Care of Nutrition and Anemia Control Programs in RCH

Both the above resource materials were well appreciated by participants and helped facilitate the discussions on nutrition anemia and RCH

At the workshop were presented experiences regarding implementation of ACP by Government in urban poor settings through operation research studies

- ◆ the MotherCare supported Health Systems Research study in Family Welfare Centers of Vadodara by Kanani and coworkers
- ◆ the OMNI supported study conducted in the ICDS system by Seshadri and coworkers

A panel discussion was chaired by the Additional Director of Health Health and Family Welfare Department Government of Gujarat in which senior officials of GOG NGO representatives and staff members of the Department of Foods & Nutrition (M S University of Baroda) participated and presented their perspective on how maternal malnutrition and anemia can be reduced in the present RCH program keeping in view the constraints of the health system

A detailed report of the workshop is available \*\* The outcome of this workshop was satisfactory in terms of our efforts at advocating for better quality of care of anemia control services for women and girls in government programs and specific actionable measures which can be taken for this in RCH in particular strengthening monitoring and supervision of nutrition services. The Government of Gujarat officials present assured the group that they would ensure that anemia control is not neglected in ICDS and would actively look into how the weakest components supply of IFA training supervision and monitoring IEC - would be strengthened. The video on anemia was highly acclaimed by the group especially the government officials who had participated in its preparation

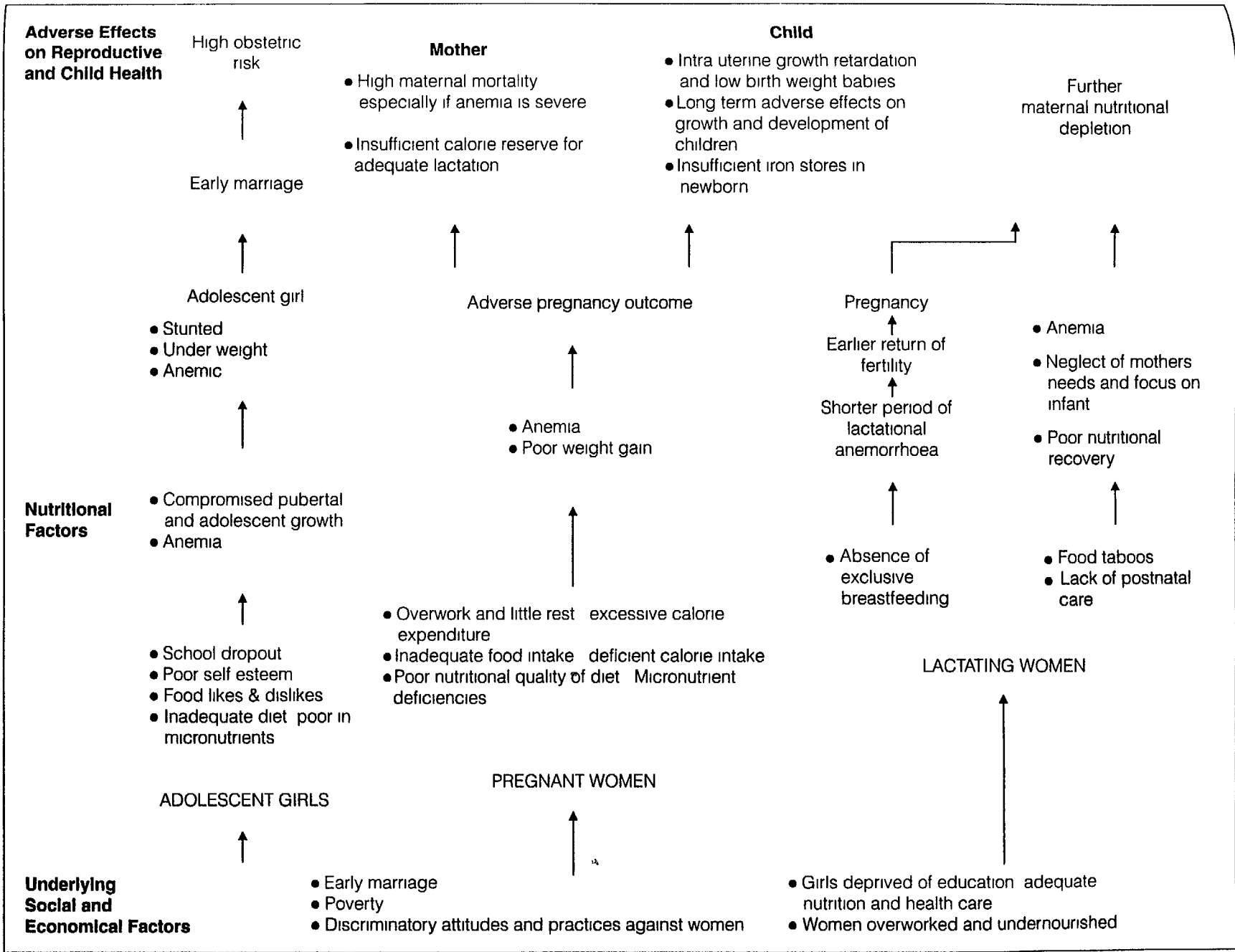
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Available on request from Dr Shubhada Kanani Department of Foods & Nutrition M S University of Baroda Vadodara 390002 India

\*\* Requests for workshop report to be addressed to The Coordinator WOHTRAC WSRC Near Faculty of Home Science M S University of Baroda Vadodara - 390 002 India

Figure 12

LINKAGES BETWEEN NUTRITION AND REPRODUCTIVE CHILD HEALTH - CAUSES AND CONSEQUENCES



## Parting Words

As the project drew to a close we were happy to learn that the RCH program does accord importance to ACP. We observed recent RCH training sessions for the urban health functionaries and were glad to note that considerable focus was on anemia control. Only time will tell whether the RCH program does indeed ensure good quality of implementation of ACP as it seeks to ensure in other services. Now is the time to intensify advocacy efforts not only for anemia control but for truly integrated, qualitatively better health care of women which does not neglect their nutritional needs.

## **SOME CONCLUDING THOUGHTS ON THE RESEARCH PROCESS AND THE CONCEPT OF PROGRAM INTEGRATION**

### **Integration Of Research Tools Advantages And Challenges**

On the plus side integration of qualitative and quantitative methods validated the data from different sources and greatly enriched the data by giving us several perspectives of the health system of the anemia control program within the system and on the other side the perceptions of women and their family members in their own words

Participatory approaches whatever the method used in the spirit of true partnership mutual empathy and respect are not only meaningful from a research point of view but also help involve program implementers in the formulation of better program strategies

Especially valuable was the use of direct observations and exit interviews to get a sense of the quality of care of these programs during the process evaluation and to make us forcefully realize that program sustainability of any intervention or innovation is not possible unless it becomes an integral part of the system and is supported by it

But there are also difficulties to overcome and challenges to be met Using a multiplicity of methods greatly increases the time required for documentation and analysis which should be budgeted in as we go along or else we will drown in the data Translators who know both English and the local language should be a part of the team from the beginning Also training and practice and more practice is an absolute must We often wished we had more practice and felt lost at times But our training helped Also at times our high hopes from a method were not entirely met but again the flexible iterative nature of our research helped us to overcome methodological limitations to the extent possible

### **Integration Of Nutrition Programs In The Governmentx Health System x**

In the area of public health if there is one term talked about at great length one which finds a place in most important policy documents it is the word INTEGRATION The family welfare program now with the new RCH approach the ICDS or other programs are all conceptualized and planned as integrated programs wherein it is envisaged that several services will be given due attention and will synergistically act for greater impact on beneficiaries Yet our experience and those of several other research groups especially those who have evaluated programs show again and again that integration occurs only in program and policy documents In the field a few services get great emphasis at the cost of others Thus when we state that nutrition care and anemia control in pregnancy should get more attention we are saying in essence that these programs should not get neglected that quality of their implementation should be strengthened We are asking that the micro health system supports maternal nutrition services as it does other services for pregnant women or other reproductive health programs

Going through recommendations on antenatal care or anemia control services given in recent reports of WHO World Bank Safe Motherhood Initiative Reproductive and Child Health Micronutrient Initiative MotherCare and others which are cited in the reference section - one realizes that though there are several excellent and actionable suggestions on what can be done there is unfortunately little focus on how these recommendations can be incorporated in the constraints and competing priorities of the present health systems of developing countries These are discussed below

The Pathway to Health in the context of Anemia Prevention and Reduction as described by MotherCare (1997) delineates 4 steps (1) recognition of the problem of anemia (2) decision to seek care from health provider (e.g. for receiving IFA pills) (3) access to quality health care i.e. women visiting health provider (4) receiving quality health care for example the correct number of pills and counselling The outcome of the pathway is stated in terms of reduction of anemia in pregnant women Similarly fact sheets produced recently by the Safe Motherhood Inter Agency Group and Family Care International (1998) highlight the importance of improving access to and quality of care of maternal health services and describe the components of quality in maternal health care services

As part of Safe Motherhood Programs recently the concept of a Mother-Baby Package has been suggested and adopted by some developing countries (WHO 1996) This package includes several interventions before during and after pregnancy nutrition advice and IFA supplementation are among the services mentioned At the base of these interventions are primary health care and empowerment of women programs ACC/SCN (1990) also states that IFA supplementation in pregnancy and lactation as an essential component of primary health care is the most practical approach for alleviating the problem of iron deficiency anemia

However what is not adequately addressed in all the above strategies is the question of how. How will these varied strategies be accepted and sustained in the overall health systems in developing country situations? Will newer strategies replace existing ones or be add-ons and what would be the subsequent implications in terms of processes and impacts? Management components are weak in most systems - should they be strengthened first? How can competing priorities of health workers, superiors and demands on their time be taken into account when suggesting program improvements? While it is true that these are micro level issues to be dealt with by concerned implementing organizations, it is also necessary for researchers, policy makers and donor agencies to draw attention to the weaknesses of the health systems in which programs operate and the urgent need to improve them if any sustainable change has to occur.

Further, policy and program personnel at all levels are more likely to move much faster towards achievement of the stated goals of reduced maternal morbidity and mortality and better maternal health and nutrition if they truly integrated all components of a program at field level and if they closely monitored all services including nutrition programs rather than doing selective supervision.

## Program Changes Need To Be Around Long Enough

According to ACC/SCN (1991) a review of nutrition programs showed that among the successful programs reviewed, it is frequently their long life itself that has allowed them to gradually adapt and become more effective. Effective programs depend on the long haul, on efforts of dedicated individuals.

There are not many case studies documented of whether program innovations or improvements were sustained in the long run, over several years, long after the project impetus or motivation had died down. The silver lining in the cloud is the example of successes in several NGOs where program changes have stayed. We believe that any programmatic improvement has to be around long enough for it to lead to favourable impact. Frequently shifting priorities in any health system without improving the basic functioning of the system is not likely to allow any program to show the desired impact.

Health Systems Research studies or Operations Research studies on micronutrients including anemia should seriously consider sustainability issues. Nutrition researchers perhaps might make a greater contribution by truly working in partnership with program implementers for a sufficiently long period, with the required flexibility, using a holistic health system approach and understanding the nuts and bolts of its functioning.

## Advocacy

Gillespie (1998) has used the framework of the Triple A Cycle (Assessment, Analysis and Action) to highlight major issues in the control of iron deficiency and has stated that the amount, control and use of human, financial and organizational resources for anemia control are determined in part by political considerations such as degree of commitment to anemia prevention and reduction vis-a-vis other priorities. The author mentions the need for an advocacy and communication plan from community level up to ministerial levels which is tailored according to who is to be influenced.

Our experiences in this project - resulting from frequent interactions with government officials at local, district and state level, as well as experiences of other research groups working closely with government (Mavalankar 1996) suggest that lessons learnt from small scale projects or NGO programs cannot be easily transferred to the organizational structures and processes in the government health systems. *Diagnosis* of a problem in a nutrition or health program is easier in a government system than *correcting* it and bringing about long term comprehensive improvements.

Further, several parallel efforts go on to combat the same problem (parallel initiatives often being funded by different donor agencies) without convergence and co-ordination, resulting in inefficient use of financial, material and human power resources. For example, in the Government of Gujarat, anemia control is an important component in RCH and Safe Motherhood Programs, ICDS and Micronutrient Initiative. Advocacy efforts should focus on the need for co-ordination mechanisms to ensure effective use of resources available for nutritional improvements in target groups.

Given that advocacy in any area is a long process, researchers and advocates for women's nutrition and anemia control will need to have 3 qualities in abundance: perseverance, patience and a participatory nature so that attitudes in the government or NGO sector like 'We cannot change the system' and 'We are already doing all that is possible' may gradually change to 'Small beginnings can grow to big changes' and 'We can make a difference at our own level if we truly want to'.

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# APPENDICES

## Appendix 1

### Features of a Fully Equipped Health Post

1	Population covered	51000 to 52000
2	Health staff	
	(a) Lady Medical Officer	1
	(b) Female Health Supervisor	1
	(c) Female Health Workers	4
	(d) Vaccinator	1
	(e) Clerk	1
	(f) Helper	1
3	Functions Expected to be Carried Out -	
	★ Registration of Pregnant Women (PW)	
	★ Early Registration of Pregnant Women	
	× Detection and Referral Services - Services to High Risk Pregnant Women	
	★ Detection and Treatment of Anaemic Pregnant Women	
	★ TT to PW (2 doses)	
	★ Atleast 3 visits to PW	
	★ Institutional Delivery (Govt /Private Hospital)	
	★ Skilled Attendance at Delivery (Institution Health Worker Trained Dai)	
	★ Growth Monitoring of Newborn Babies	
	★ Retention and Referral of High Risk Mothers	
	★ Infant Immunization (BCC OPV OPT Measles DT at 5 years)	
	★ Vitamin A Solution for Children from 9 Months to 3 Years Every 6 Months	
	★ Diarrhoea Cases Treated with ORT (Each Child in the Age Group of 0-5 yrs Age Group is Likely to Get 3 Episodes of Diarrhoea in a Year)	
	★ ARI/Pneumonia Cases (Upto 5 Yrs)	
	★ Family Planning Activities	

Note There are also 21 Family Welfare Centres in Urban Vadodara catering to similar functions but the Health Post is expected to give more importance to holistic health care especially MCH

## Appendix 2

### Question Guides for all the Qualitative methods used in the study

#### A Guidelines for focus group discussion with pregnant women

Area \_\_\_\_\_ Date \_\_\_\_\_  
Name of the FHW \_\_\_\_\_ Time \_\_\_\_\_  
Moderator \_\_\_\_\_ Recorder \_\_\_\_\_

#### *Particulars of the Participants*

Name	Age	No. of Pregnancies	No. of Live Births
1			
2			
3			

#### *Themes On Which Questions Were Formed*

- ★ Common health problems during pregnancy and treatment taken to overcome these problems
- ★ Definition of anemia
- ★ Causes of anemia
- ★ Consequences of anemia
- ★ Symptoms of anemia
- ★ Treatment of anemia
- ★ Sources of iron tablets
- ★ Advice regarding iron tablets or any other
- ★ Benefits of iron supplementation

#### B Interview Schedule for Health Service Providers (FHW, FHS and LMO)

Name of the Health Centre /  
Family Welfare Centre \_\_\_\_\_ Date \_\_\_\_\_  
Name of the FHW/FHS/LMO \_\_\_\_\_  
Educational Qualification \_\_\_\_\_  
Experience of the functionary \_\_\_\_\_

#### *List of Questions*

- 1 What are the common health problems of pregnant women?
- 2 What do you feel are the reasons for the problems?  
Problem during pregnancy      Reason      Common treatment by pregnant women preferred
- 3 What must be the prevalence of pregnancy anemia in your area?
- 4 How do you detect anemic pregnant woman?

- 5 What are the ill effects of pregnancy anemia?
- Ill effect on the pregnant mother
  - Ill effect on the foetus / infant
- 6 What are the symptoms and causes of pregnancy anemia?
- |          |                  |
|----------|------------------|
| Symptoms | Reasons / Causes |
|----------|------------------|
- 7 What is the common home remedy for pregnancy anemia?
- What advice do you give to a pregnant woman regarding prevention of anemia?
  - What teaching aid do you use while imparting the information?
  - Can you make them understand easily?
  - What problems do you face while imparting the information?
  - Can you make them understand easily?
  - What problems do you face while imparting the information?
  - What do you do to overcome the problems? Effort to remove problem
- 8 What is the objective of the Government Iron Folic Supplementation Program?
- Objective
- Who else distributes iron folic acid tablets in your area?  
Other resource
  - How do you co-ordinate with them?
- 9 What is your role in the iron folic acid tablets distribution program?
- To get the tablets
  - Tablets distribution
  - Maintenance of iron distribution record
  - Any other
- 10 Have you faced any problems in above mentioned job? If yes what are they?
- From where do you distribute IFA tablets?  
MCH Clinic / Home / both places/Any other?
  - What method would you prefer to distribute IFA? Why?
- 11 According to you what are the reasons for non-compliance as far as IFA is concerned?
- Which records do you maintain for IFA distribution?
  - Do you feel that changes are required to maintain IFA distribution records?
- 12 Do you follow up the pregnant women to check whether they are taking IFA tablets?
- 13 What advice do you give to the pregnant women while distributing IFA tablets to them?
- Do you feel that the tablets distributed by you are swallowed by the pregnant women? If yes why?
  - If no why?
- 14 What are the common reasons for non-compliance of IFA tablets in pregnant women?
- 15 According to you what preventive measures or home-remedy they do to prevent anemia in pregnant women?
- 16 What are your suggestions to improve current IFA distribution system?
- 17 What are your suggestions to improve current anemia prevention programme?

### C Interview Schedule for Pregnant Women

Date \_\_\_\_\_ Time \_\_\_\_\_ to \_\_\_\_\_  
Interviewer's Name \_\_\_\_\_  
Respondent's Name \_\_\_\_\_

- 1 Do you think that a pregnant woman should register herself in an ANC centre? Yes / No
- 2 Have you registered in an ANC centre? (Name of the centre)
- 3 If No why?
- 4 If Yes in which month?
- 5 How many months are you pregnant right now?
- 6 How many times have you visited the centre till now?
- 7 Does any one of your family members accompany you to the clinic? Yes / No
- 8 If Yes who?
- 9 Are you aware of the services provided at the centre for pregnant women?
- 10a Which of these services do you find useful? Why?
- 10b Which of them are not useful? Why?
- 11 Which were the services availed by you in your last AW visit?
- 12 Do you think that pregnant women need regular weight monitoring? Why?
- 13 Do you think that ANC visits are useful for pregnant women (especially for those in the 3rd trimester)? Why?
- 14 Why should pregnant women regularly consume iron tablets?
- 15 Why should pregnant women receive 2 T T shots?
- 16 Should the pregnant women receive information regarding their diet and nutrition? Why?
- 17 Are these services available at your ANC centre? (Name of the centre)
- 18 From where do you get iron tablets?
- 19 Do you consume them every day?
- 20 Does any one remind you to take these tablets?
- 21 What are the advantages of consuming iron tablets to you?
- 22 If you do not take iron tablets why?
- 23 Do you give importance to your diet?
- 24 Do you do the same amount of housework which you used to do previously? Has it increased/decreased?
- 25 Where have you registered for delivery?
- 26 Do you have any suggestions regarding the ANC services given at the health centre?

### D Interview Schedule for Family Members (mother-in-law/husband of pregnant women)

Area \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_ to \_\_\_\_\_

Interviewer's Name \_\_\_\_\_

Respondent's Name and relation with pregnant woman \_\_\_\_\_

- 1 Do you think that a pregnant woman should register herself in an ANC centre? Yes / No
- 2 Has your daughter-in-law/wife registered in an ANC centre (name)?
- 3 If No why?
- 4 If Yes in which month?
- 5 How many months is she pregnant right now?
- 6 How many times has she visited the centre till now?
- 7 Does any family member accompany her to the clinic?  
Yes / No
- 8 If Yes who?
- 9 Are you aware of any services provided at the health centre for pregnant women?
- 10 (a) Which of these services do you find useful? Why?  
(b) Which of them are not useful? Why?
- 11 Which were the services availed by the pregnant woman in her last visit?
- 12 Do you think that pregnant women need regular weight monitoring? Why?
- 13 Do you think that ANC visits are useful for pregnant women (especially for those in the 3rd trimester)?  
Why?
- 14 Why should pregnant women regularly consume iron tablets?
- 15 Why should pregnant women receive 2 TT shots?
- 16 Should the pregnant women receive information regarding their diet and nutrition? Why?
- 17 Are these services available at your ANC centre (Name)?
- 18 From where does the pregnant women get iron tablets?
- 19 Does she consume them daily?  
Yes / No
- 20 Do you remind her to take these tablets?  
Yes / No
- 21 What are the advantages of taking iron tablets during pregnancy to her?
- 22 If she does not take iron tablets why?
- 23 Does she give importance to her diet?
- 24 Does she do the same amount of house work which she used to do previously?  
Has it increased or decreased?
- 25 Where has she registered for delivery?
- 26 Do you have any suggestions regarding the ANC services given at the health centre?

**E Interview schedule on behaviours related to procurement and consumption of IFA tablets by pregnant women**

Date	Area	Completed weeks of Gestation
Name	Address	LMP

- 1 Do you consume IFA tablets everyday ? a Yes b No
  - 1a If Yes why ?
  - 1b If No why ?
- 2 When did you start taking the tablets ?
- 3 How many tablets do you take every day ?
- 4 So far how many tablets have you consumed ?
- 5 From where do you get these tablets ?
- 6 Does the Anganwadi worker or the FHW or any health worker come and give you the tablets ? (specify)
  - a) If yes how many tablets are you given at a time ?
  - b) How many times have they given you the tablets so far ?
  - c) Do they give any instruction/advice at the time of distributing the tablets ? Yes / No
    - 1a If yes What advice is given
  - d) If nobody comes to give you tablets do you go and get the tablets on your own ?
    - (a) Yes (b) No
    - 1a Give reasons
- 7 Who has advised you to consume the tablets ? Can you describe ?
- 8 Are you reminded to consume IFA tablets ?
  - (a) Yes (b) No
  - 1a If yes who reminds you ?
  - 1b How ?
- 9 Have you experienced any benefits of the tablets ?
  - (a) Yes (b) No
  - 1a Specify
- 10 Have you suffered from any side effects after consuming the tablets ?
  - (a) Yes (b) No
  - 1a If yes specify
- 11 Did you continue to consume the tablets despite the side effects ?
  - (a) Yes (b) No
  - 1a Reason
- 12 Do you have any problem with regard to procurement and consumption of the tablets ?

## F Interview Schedule for Nursing Tutor

Date and time of interview \_\_\_\_\_

Name of the tutor \_\_\_\_\_

Training experience of the tutor \_\_\_\_\_

Present designation of the tutor \_\_\_\_\_

- 1 Who frames the syllabus of training course of the health functionaries ?
- 2 How many years training is given to the FHWs? What type of training is given?
- 3 What is the curriculum of the course?
- 4 In the curriculum nutrition is included What exactly in nutrition? Also what exactly regarding ACP and other aspects of IDA ?

## G Free Listing of Foods Which Increase the Strength of Blood (Iron and Vitamin C rich foods) Purpose

- 1 To determine the foods which increase the strength of blood according to pregnant women
- 2 To obtain local names of these foods as well as iron and vitamin C rich foods
- 3 To ascertain whether women consume these foods

- 
- (1) What are the foods which increase the strength of your blood/make your blood red and healthy?
  - (2) Probing question - Can you name some other foods which make your blood healthy?
  - (3) How are these foods useful?
  - (4) Do you consume all these foods during pregnancy? If not why?
  - (5) Which of these above listed foods are hot or cold?
- 

Iron and Vitamin C  
rich foods

Other Benefits of  
these foods

Note Include this in case studies of anemic and non-anemic women

## H Question Guide for Seasonality Diagramming

- 1 Which are the different seasons in a year ?
- 2 Which vegetables and fruits are available in a particular season ?  
Summer Monsoon and Winter (Focus on Vitamin C and Iron rich foods)
- 3 Which foods items are cheaper ? In which season ?  
Which foods are expensive ? In which season ?
- 4 Which food items are consumed most during pregnancy ?
- 5 Which food items are not consumed during pregnancy or does somebody ask you not to consume them?



**I Food Frequency Frequency of consumption of iron and vitamin C rich foods**

Items	Daily	2-3 times a week	Once a week	Fortnightly	Monthly	Rarely
Bajra						
Bengalgram (roasted)						
Cow pea						
Lentil						
Peas (dry)						
Mothbeans						
Colocasia						
Fenugreek						
Mint						
Shepu						
Tomato (ripe)						
Tomato (green)						
Amla						
Orange						
Guava						
Lemon						
Jaggery						
Meat						
Fish						
Eggs						

## Appendix 3

### Structured Questionnaire for Quantitative Methods

#### A Socio Economic Status Proforma

Date \_\_\_\_\_ Time \_\_\_\_\_ to \_\_\_\_\_  
 Name of Interviewer \_\_\_\_\_ Name of Subject \_\_\_\_\_  
 Address \_\_\_\_\_ Age \_\_\_\_\_ years

1 Occupation (specify) Self \_\_\_\_\_  
 Husband s \_\_\_\_\_

2 Income (from all sources) Rs \_\_\_\_\_ p m P C I Rs \_\_\_\_\_ p m

3 Family composition

No	Name the Head	Relation to M F	Sex (yrs)	Age	Education

4 Religion ( / ) (a) Hindu \_\_\_\_\_ (b) Muslim \_\_\_\_\_  
 (c) Christian \_\_\_\_\_ (d) Any other (specify) \_\_\_\_\_

5 Construction of the house ( / )  
 (a) Hut \_\_\_\_\_ (b) Kutcha house \_\_\_\_\_  
 (c) Semi-pucca \_\_\_\_\_ (d) Pucca house \_\_\_\_\_

6 Source of drinking water ( / )  
 (a) Individual tap \_\_\_\_\_ (b) Common tap/Community stand-post \_\_\_\_\_  
 (c) Hand-pump \_\_\_\_\_ (d) Any other (specify) \_\_\_\_\_

7 Toilet facilities used ( / )  
 (a) Individual toilet \_\_\_\_\_ (b) Public toilet \_\_\_\_\_  
 (c) Open defecation \_\_\_\_\_ (d) Any other (specify) \_\_\_\_\_

8 Sanitation of the house and surroundings

- (a) House swept
- (b) Garbage disposed in closed bins
- (c) Garbage disposed in open bins
- (d) Garbage thrown outside
- (e) Flies/Insects outside house
- (f) Flies/Insects outside house
- (g) Stagnant water outside house
- (h) Children s defecation inside house
- (i) Open defecation near house

### Scoring System sanitation of house and surroundings

		Score	
		Yes	No
a)	House Cleaned	2	1
b)	Garbage disposed in closed bins	3	
c)	Garbage disposed in open bins	2	
d)	Garbage thrown outside	1	
e)	Flies/Insects inside the house	1	2
f)	Flies/Insects inside the house	1	2
g)	Stagnant water outside the house	1	2
h)	Child defecation inside the house	1	2
i)	Open defecation in the rear of house	1	2
Total Score		13 - 15	Good
		10-12	Fair
		7 - 9	Poor

**B Morbidity Proforma**

Date \_\_\_\_\_

Time \_\_\_\_\_ to \_\_\_\_\_

Subject's Name and Code \_\_\_\_\_

Area \_\_\_\_\_

Hb \_\_\_\_\_ g/dl

Complaints	Gestational age when 1st	No of episodes experienced	Duration (days)	Treatment taken
1 Morning sickness				
2 Nausea/vomiting				
3 Giddiness				
4 Burning in micturition				
5 Increased frequency of micturition				
6 Pain in abdomen				
7 Pain in pelvic region				
8 Perverted appetite				
9 Loss of appetite				
10 Acidity/heart burn				
11 Excessive weight gain				
12 Headache				
13 Constipation				
14 Leucorrhoea				
15 Edema				
16 Backache				
17 Spot bleeding				
18 Cramps in lower limbs				
19 Irregular fetal movements				
20 Itching				
<b>General health problems</b>				
1 URI				
2 Fever				
3 Malaria				
4 Any other				

Source of Treatment    a FWC/ANC    b Govt Hospital    c Private Hospital    d Home remedies  
                                  e Any other        f No treatment

## C Obstetric History

- 1 Age at menarche
- 2 Age at marriage
- 3 Age when the first child was born
- 4 No of live born children
- 5 Any miscarriages -  
Yes / No  
If Yes how many?
- 6 Any still born children -  
Yes / No  
If Yes how many?
- 7 Date of birth of last baby
- 8 LMP - 1st day of last menstrual period  
No of weeks pregnant  
Expected date of delivery
- 9 No of months between last birth and expected date of delivery -  
1st pregnancy  
1 year  
2 years
- 10 Any LBW baby (<2.5 kg) -  
Yes / No  
If Yes LBW
- 11 Post-partum hemorrhage during any previous deliveries -  
Yes / No  
If Yes post-partum hemorrhage
- 12 Any premature delivery (after 28w and before 36w) -  
Yes / No  
If Yes no

**D Delivery Record**

1	Date of delivery	
2	Gestational duration (weeks)	
3	Prolonged labour (>12 hours) - Yes / No If Yes _____ hours	
4	Delivery type - a Normal b Forceps c Caesarean d Any other/complications	
5	Place of delivery - a Hospital - Name of hospital b Home	
6	Weight of the newborn (kg/lbs)	
7	Sex of the newborn - M / F	
8	Post-partum bleeding - a Mild b Moderate c Heavy	
9	Whether a high risk mother - Yes / No	

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## **Appendix 4**

### **List of Files, Records and Registers of the Health Post**

The following are the list of files registers and records which are to be maintained by the FHWs and FHSs at the health post

- 1 Monthly Report File for the year
- 2 Time Book
- 3 Attendance Register
- 4 Daily Case Register
- 5 Movement Register
- 6 Family Planning Operation Register
- 7 IUD Register
- 8 Immunization Register
- 9 Nirodh Register
- 10 Oral Pills Register
- 11 Action Plan
- 12 MCH Register including ANC and PNC register
- 13 Referral Cases Register for the special cases referred to the Government Hospital

## Appendix 5

### Questionnaire for Exit Interviews

- 1 Name
- 2 Address Education
- 3 Pregnant/Lactation
- 4 \_\_\_ months pregnant/\_\_\_ month old child
- 5 Visited antenatal clinic at the Health Post for check-up during pregnancy  
Yes / No
- 5A If No place visited for antenatal check-up
  - 1 Private hospital - Name of the hospital
  - 2 Government Hospital
- 5B Was aware of the antenatal check-up at the health post  
Yes / No
- 5C Come to the Health Post only for Tetanus Toxoid vaccination Yes / No
- 6 Number of antenatal visits to the health post
- 7 Purpose of visit Antenatal Checkup/ TT immunization/Both
- 8 Received iron tablets during visit to health post (for pregnant/lactating) Yes / No
- 9 If yes number of tablets/number of packets received during each visit (only pregnant)
- 10 Total number of tablets received (only pregnant)
- 11 Total number of tablets consumed (only pregnant)  
All tablets consumed Yes/No  
If no reason for irregularity
- 12 No of tablets taken every day One / Two
- 13 Time of tablet consumption After meals -- at noon / in the evening
- 14 14A Advice/Instructions received
- 14B Given by Doctor 1 Nurse 2
- 15 Benefits of consuming iron tablets
- 16 Benefits experienced by women Yes / No If Yes benefits If No reason given
- 17 Side effects if any



## Appendix 6

### A sample of codes used for Data Analysis

[#COMMON HEALTH PROBLEMS DURING PREGNANCY(CO-HPP)#]  
[#COMMON HEALTH PROBLEMS DURING PREGNANCY - REASON(CO-HPP-R)#]  
[#COMMON HEALTH PROBLEMS DURING PREGNANCY - TREATMENT(CO-HPP-T)#]  
[#PERCENTAGE OF ANEMIA - PREGNANT WOMEN(ANP-PW)#]  
[#DETECTION OF ANEMIA - PREGNANT WOMEN(AND-PW)#]  
[#ANEMIA - PREGNANCY - EFFECT ON MOTHER(AN-P-EM)#]  
[#ANEMIA PREGNANCY - EFFECT ON CHILD(AN-P-EC)#]  
[#ANEMIA SYMPTOMS DURING PREGNANCY(AN-SP)#]  
[#ANEMIA CAUSES DURING PREGNANCY(AN-CP)#]  
[#ANEMIA - TREATMENT(AN-T)#]  
[#ANEMIA - PREGNANT WOMEN - COUNSELLING(AN-PW-C)#]  
[#ANEMIA PREGNANT WOMEN - COUNSELLING METHODS(AN-PW-CM)#]  
[#ANEMIA PREGNANT WOMEN - EFFECTIVENESS OF COUNSELLING(AN-PW-CE)#]  
[#ANEMIA PREGNANT WOMEN - PROBLEMS DURING COUNSELLING(AN-PW-CP)#]  
[#ANEMIA - PREGNANT WOMEN - SOLUTIONS FOR PROBLEMS DURING COUNSELLING(AN-PW-CPS)#]  
[#GOVERNMENT IRON SUPPLEMENTATION PROGRAM - OBJECTIVE(GIS-O)#]  
[#IRON TABLET DISTRIBUTION - PREGNANT WOMEN -OTHER SOURCES(ITD-PW-OS)#]  
[#IRON TABLET DISTRIBUTION - PREGNANT WOMEN - CO-ORDINATION WITH OTHER SOURCES(ITD-PW-OSCO)#]  
[#ROLE OF FHW - PROCUREMENT OF IRON TABLETS(FHWR-PIT)#]  
[#ROLE OF FHW DISTRIBUTION OF IRON TABLETS(FHWR-DIT)#]  
[#ROLE OF FHW - RECORD KEEPING OF IRON TABLETS(FHWR-REIT)#]  
[#ROLE OF FHW ANY OTHER(FHWR-AO)#]  
[#ROLE OF FHW - PROBLEM(FHWR-P)#]  
[#IRON TABLET DISTRIBUTION - PREGNANT WOMEN - PLACE OF DISTRIBUTION(ITD-PW-PLD)#]  
[#NON CONSUMPTION/COLLECTION OF IRON TABLETS - PREGNANT WOMEN - FHW s REASON(ITNC-PW-RA)#]

## Appendix 7

### Job Functions of the FHWs and FHSs (Old)

- 1 Field work in the allocated field area
- 2 Fill maintain and update the registers follow-up cards as well as any other related papers for 4 hours after field work
- 3 Fill registers related to immunization and family planning
- 4 Organize educational programs such as group discussions film shows and exhibitions related to family welfare and MCH in the field areas
- 5 Contact voluntary organizations to seek their cooperation in the educational programs
- 6 Organize camps to improve MCH activities (Immunization and nutrition related)
- 7 They should have proper stock of all family planning related material
- 8 Make separate registers for ANC and PNC services provided to the women
- 9 To visit post partum women in maternity homes in their area and to encourage them for family planning
- 10 Apart from the above activities FHSs should guide and monitor activities of other field worker
- 11 They should also do all the work assigned by any of the officials of the Government Bureau and of the health post

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## Appendix 8

### Job Functions of the FHWs and FHSs (New)

- I Survey Cum Home Visit (1 day every week areawise)
  - 1 Monthly registration of pregnant women through home visits before 16 weeks of pregnancy (except in ICDS areas)
  - 2 Noting high risk pregnancy and newborn during home visit
  - 3 Giving nutrition counselling giving iron tablets or follow up of iron supplements, advise for referral etc during the home visit
- II Antenatal Clinic (1/2 or 1 day every week at the centre)
  - 1 Assist MO in the checkup
  - 2 Take weight and give iron tablets and IT vaccination
  - 3 Advise the women to consume the iron tablets improve their diet, rest etc using IEC material
  - 4 Advice for spacing method
- III Health-Nutrition Education (1day per week in different areas)
  - 1 Organize mahila mandal meetings weekly
  - 2 Organize a health exhibition competition etc once in 2 months
  - 3 Give NHE on every home visit using IEC material especially to high risk and anemic pregnant women
- IV Monitoring and Supervision
  - 1 Both FHSs and FHWs to maintain records showing both quantity and quality of care in ANC
- V For FHSs
  - 1 To guide FHWs
  - 2 To maintain supervision registers

## Appendix 9

### Modified Columns Of ANC Register

Sr No	Record No and Date	Name and Address	Age	Gravida Pass	Age of Youngest Child	LMP EDD
1	2	3	4	5	6	7

Month of Pregnancy	Medical Checkup	Weight in kg	Urine Test	B P	Ist	TT IInd	Booster
8	9	10	11	12	13	14	15

Whether High Risk		If Yes Reasons of High Risk	Iron Tablets (Nos )		Remarks
Yes	No		Provided	Consumed	
16	17	18	19	20	21

## Appendix 10

### Vertical Campaigns and Major Health Care Activities Carried Out Over A year January 1997 to January 1998

January	Pulse Polio National Program on 18 January for vaccination of children against polio
February- March	Completion of family planning targets as the year ends on March 31
April- July	15 April till end of July- Updating survey for enrolment of eligible couples
August (1st week)	Preparation of action plan (prediction of antenatal care postnatal care family planning and immunization targets)
15-30 August	Various health care activities to celebrate 50 years of Indian Independence
September	8-13 September School health program which went on till 20th September
October	Visits to schools for giving payments to the teachers
November	17-22 November- Malaria Control Program
December	7th December- Pulse Polio Preparation for the program in the first week of December
January	18th January Pulse Polio Modified Leprosy Elimination Campaign in late January to early February

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## Appendix 11

### A Typical Day Of An FHW In Between Ad Hoc Programs

9 00 to 9 20 a m	Health Post locked
9 20 a m	Helper/ FHW/ FHS opens the post
9 30 to 10 00 a m	All staff arrive except MO and start chatting also talk about TL cases
10 00 to 10 30 a m	Tea Break
10 30 to 11 30 a m	MO arrives discusses routine work such as leave to be taken and the upcoming Leprosy Campaign
11 30 a m to 12 30 p m	FHWs and FHS fill registers e g CuT Operation MCH registers and chat about household problems
12 30 to 1 00 p m	Lunch
1 00 to 2 00 p m	Sit idly chatting reading newspaper
2 00 to 3 00 p m	Continue register work - update and fill registers
3 00 to 3 30 p m	Health workers from nearby NGO come to collect vaccines ORS packets and contraceptives
3 30 to 4 00 p m	Tea break again!
4 00 to 5 00 p m	Continue register work discuss about field areas to be covered by each worker during the Leprosy Campaign

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## Appendix 12

### Work Plan for the FHWs

FHWs workload Approx 40 hours/ week

#### ***Suggested proportionate time distribution***

Records 10% (4 hours)  
Community survey 20% (8 hours)  
Other miscellaneous work 20% (8 hours)  
Providing services 50% (20 hours)

#### ***Major services***

##### **Family Planning activities**

Visits to unprotected/ eligible couples counseling for temporary/ permanent family planning methods

##### **Activities for pregnant and lactating women**

ANC services Early antenatal registration check up (abdominal examination) TT iron- folic acid distribution monitoring of compliance with iron dietary advice history of high risk factors referral services

PNC services Advice regarding breast feeding (especially colostrum) and weaning iron-folic acid high risk infant

##### **Activities for infants and pre-school children**

Immunization vitamin A and iron supplements

Can make weekwise or monthwise plan taking care of all the activities mentioned above FHSs to motivate and supervise the FHWs Overall supervision and guidance by the Medical Officers