WORLD HEALTH ORGANIZATION

ORGANISATION MONDIALE DE LA SANTE

REGIONAL OFFICE FOR THE WESTERN PACIFIC
BUREAU REGIONAL DU PACIFIQUE OCCIDENTAL

MISSION REPORT

Subject	:	Weekly iron/folate supplementation: introduction of a new approach towards controlling anaemia among women of reproductive age
Place visited	:	Manila, Philippines
Dates of mission	:	6 -24 October 1997 22 November - 12 December 1997
Author and designation	:	Dr Suttilak Smitasiri Dr Arun Menon WHO Consultants
Title of project	:	Strengthening the health of women and children in family planning
Participating agencies	:	Government of the Philippines World Health Organization
Source of funds	:	Regular budget

Key words

Anaemia. Iron - deficiency - prevention and control / Iron / Folic Acid / Philippines

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WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR THE WESTERN PACIFIC

EXECUTIVE SUMMARY OF A MISSION REPORT

Dr Suttilak Smitasiri Dr Arun Menon Authors	Philippines Place visited	14-24 October & 1-12 December 1997 6-23 October & 22 November - 11 December 1997 Dates of mission
RS/97/0138 Report series number	WP/ICP/RPH/001 Project identifier	02.04.SC.01 & 02.04.SC.03 Activity code

Objectives of mission:

In collaboration with the national authorities of the Philippines:

For the social marketing consultant (Dr S. Smitasiri)

(1) to investigate the reasons why pregnant women are not taking iron/folate supplements regularly (through focus group meetings and other means);

(2) to prepare and help initiate a social marketing campaign aimed at women of reproductive age (WRA) and their families on the need, importance and harmlessness of taking iron/folate supplements to prevent and control pregnancy anaemia in selected areas in the Philippines (the possibility of charging a nominal fee for the supplements should be considered); and

(3) to identify ways of achieving intense community participation in the project and of reminding WRAs to take their supplements (e.g., establishment and promotion of an "iron day", a particular day of the week, such as Sunday, when the selected target groups should take their weekly supplement).

For the epidemiologist (Dr Arun Menon)

(1) to discuss the master protocol for the introduction of weekly iron/folate supplements in women of reproductive age with the responsible institution in the Philippines: (a) adapting it to local circumstances, and (b) helping in the preparation and the initial phase of the intervention;

(2) to assess the present delivery system of daily iron/folate supplementation in pregnancy and related problems, and help set up the delivery system for weekly iron/folate supplements according to the agreed protocol;

(3) to conduct the training and testing required for the distribution of weekly iron/folate supplements, the laboratory assessment of iron status and the collection of information on other aspects of relevance for the effectiveness of the intervention, such as compliance, dropouts, etc.; and

(4) to collaborate in the preparation of the social marketing campaign.

Summary of activities, findings, conclusions and recommendations:

The writers had discussions and worked with several persons associated with the Nutrition Service, Department of Health, United Laboratories (UNILAB) and municipal health services. The project area was visited to gather information from local officials, community leaders and WRAs.

Lack of the supplements was identified as the most important barrier to improving iron nutrition. Nevertheless, pregnant women who received the supplements were not always well-informed about the benefits. Some attached a greater value to commercial products and private services.

A community-based social mobilization, communication and marketing intervention is necessary to introduce weekly iron/folate supplementation to WRAs in the country. Assessing both the knowledge, attitudes and practice and the iron status of selected WRAs in the project area is required to determine the effectiveness of this new approach.

To ensure successful implementation, development of detailed intervention and evaluation plans and a good preparatory process are essential next steps for creating more community participation and readiness for the project implementation. Strong coordination is critical for managing all project activities.

Recommendations include the following:

(1) The Nutrition Service should work in collaboration with WHO to ensure that the project is executed appropriately as agreed upon in the proposal.

(2) The project organization should be finalized. The roles and responsibilities of the project team should be clear and agreed upon among all involved. All project team members should work closely together especially during the first six months in implementing and controlling the project. If it is necessary to adjust the project plan and strategies, the project team should make decisions based on sustainability. The project team should always mobilize local resources and utilize low cost communication materials to ensure the replicability of the project approach.

(3) In promotion/education/communication activities, the project team should spend adequate time in creative development to ensure good message design for both the communication materials and training approaches.

(4) The Nutrition Service should provide administrative support to the project team to ensure good management of the project.

(5) Close coordination among Nutrition Service, WHO and UNILAB should continue to ensure the success of the intervention and evaluation. Due to the lack of experienced researchers, the Nutrition Service may benefit from some external help. A degree of external supervision will be required to support the data and sample collection process.

Key words : Anaemia, Iron - deficiency - prevention and control / Iron / Folic Acid / Philippines

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1. PURPOSE OF MISSION

Dr S. Smitasiri visited Manila, Philippines from 14 October to 24 October and 1 December to 12 December 1997 and Dr A. Menon from 6 to 23 October and 22 November to 11 December 1997. The terms of reference were:

In collaboration with the national authorities of the Philippines:

For the social marketing consultant (Dr S. Smitasiri)

(1) to investigate the reasons why pregnant women are not taking iron/folate supplements regularly (through focus group meetings and other means);

(2) to prepare and help initiate a social marketing campaign aimed at women of reproductive age (WRA) and their families on the need, importance and harmlessness of taking iron/folate supplements to prevent and control pregnancy anaemia in selected areas in the Philippines (the possibility of charging a nominal fee for the supplements should be considered); and

(3) to identify ways of achieving intense community participation in the project and of reminding WRAs to take their supplements (e.g., establishment and promotion of an "iron day", a particular day of the week, such as Sunday, when the selected target groups should take their weekly supplement).

For the epidemiologist (Dr Arun Menon)

(1) to discuss the master protocol for the introduction of weekly iron/folate supplements in women of reproductive age with the responsible institution in the Philippines: (a) adapting it to local circumstances, and (b) helping in the preparation and the initial phase of the intervention;

(2) to assess the present delivery system of daily iron/folate supplementation in pregnancy and related problems, and help set up the delivery system for weekly iron/folate supplements according to the agreed protocol;

(3) to conduct the training and testing required for the distribution of weekly iron/folate supplements, the laboratory assessment of iron status and the collection of information on other aspects of relevance for the effectiveness of the intervention, such as compliance, dropouts, etc.; and

(4) to collaborate in the preparation of the social marketing campaign.

2. BACKGROUND

In the Western Pacific Region of WHO about 50% of women are anaemic. The main method of dealing with anaemia to date has been the distribution of daily iron supplements during pregnancy. The success of this approach, however, has been limited and a new

approach "preventive supplementation" based on weekly supplementation with iron and folate, which aims to correct anaemia before pregnancy, has been suggested.

Field and clinical trials comparing weekly with daily intake of iron in many groups of individuals including pregnant women have demonstrated the efficacy of weekly iron supplementation. These trials, however, have been undertaken under supervision and were not based on preventative supplementation starting before pregnancy. ***Before suggesting that countries launch a new strategy it is essential to implement and evaluate the idea of preventive supplementation on a small scale in a selected areas of Philippines under the usual programme conditions of unsupervised intake.***

3. ACTIVITIES AND FINDINGS

3.1 Activities

The writers had discussions and worked with several persons associated with the Nutrition Service/Department of Health, United Laboratories (UNILAB) and municipal health services (see Annex 1). The project area (Region I;Pangasinan: Binmaley and Calasiao) was visited.

The writers also conducted indepth interviews and focus group discussions and directly observed local officials, community leaders and WRAs (non-pregnant, pregnant and lactating) in their homes, Rural Health Units, Barangay Health Stations and schools. Based on these activities, the following findings are highlighted.

3.2 Findings

3.2.1 The practice of taking iron supplements among Filipino pregnant women

Rural Health Units and Barangay Health Stations in Binmaley and Calasiao still do not have an adequate supply of iron supplements for pregnant women who come for their check-ups. Once the supply has run out, women are given a prescription to buy the supplements from local drug stores. Doctors and midwives indicated this lack of the supplements as the most important barrier to improving iron nutrition. It is only around the national micronutrient day (16 October) that the supply is sufficient (20 tablets per a client) to distribute tablets to all pregnant women.

Pregnant women who received the supplements were not always enthusiastic about taking them. This might be because the supplements were given out wrapped in used paper. Some women seemed to place a greater value on commercial products (such as "Mamacare") and the services provided by private practices.

Commercial iron supplements were available in most drugstores at the municipal levels.

3.2.2 Weekly iron/folate supplementation: a social marketing plan

The objective is to effectively introduce weekly iron/folate supplements to WRAs in Binmaley and Calasaio. The project's efforts will be focused on social mobilization, communication, education and marketing activities by:

(1) developing a product that is attractive to WRAs;

(2) strengthening municipal and barangay organizational support to facilitate the promotion of the supplements;

(3) improving pre and post-natal services in the Rural Health Units and Barangay Health Stations to ensure that pregnant and lactating mothers will take their supplements regularly;

(4) working with UNILAB to distribute the supplements to non-pregnant WRAs through traditional and non-traditional outlets;

(5) providing communities with education/promotion programmes that will expand people's knowledge about nutrition and health and especially the importance of iron for WRAs. This will encourage more participation; and

(6) reminding WRAs to take their weekly supplements before going to bed on Sunday night.

See Annex 2, section 5.1 for more details.

3.2.3 The evaluation

The objective is to assess the effectiveness of the combined strategy of social mobilization and weekly iron/folate supplementation in improving both the knowledge, attitudes and practice, and the iron status of women of reproductive age in the project area.

From the evaluation point of view,

(1) it has to be noted that the Nutrition Service has Dr Imelda Angeles Agdegpa who is studying the use of weekly supplementation in adolescents. She has agreed to be the project manager as the project areas are located in the region she works in;

(2) epidemiological issues relating to the cohort for the evaluation were clarified;

(3) a trial questionnaire was designed;

(4) The Nutrition Service is enthusiastic about organizing the surveys and the collection of samples mandatory in assessing the outcome of the programme, but requires help due to the lack of experienced researchers;

(5) the Bureau of Research and Laboratories can carry out the basic tests required. No training is required;

(6) there is some experience with data handling, the construction and use of databases such as SPSS in analysis. Backup to ensure that the data is correctly handled will be required.

See Annex 2; section 5.2 for more details.

As a result of collaboration, the master protocol was revised and adapted to local circumstances (see Annex 2) and has been accepted as the working document for the project.

The next stages are: matching the expenditures with the resources available; and the development of an operational plan.

3.2.3 Constraints

Due to the nature of social marketing implementation, which is process oriented, the project needs to develop a mechanism to ensure that project activities are implemented as planned and to allow enough flexibility in adjusting the plan when necessary. The role of project coordinator is critical for the success of the project especially in mobilizing communities and balancing the efforts from both the commercial and the government sectors. The NS coordinator will need to spend enough time to manage the project well.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The Government of the Philippines has previously implemented effective nutrition interventions. It has the ability to innovatively mobilize and educate target populations about nutrition and health. A strength of the system is the combination of commercial and government efforts in nutrition and health development. It is clear that the Government is committed to improving nutrition and health while the industry is often keen to provide support using market-based solutions. This is certainly beneficial to the introduction of weekly iron supplementation to WRAs in the country.

The project team will need to

(1) develop detailed plans for intervention and evaluation in consultation with their partners at UNILAB, municipalities and barangays; and

(b) organize a good preparatory process to ensure a high level of participation and the community's readiness for the project implementation.

New training approaches need to be developed to facilitate project implementation. The evaluation will help to develop the research capability of the Nutrition Service.

4.2 Recommendations

(1) The Nutrition Service and Department of Health (NS/DOH) should work together with WHO to ensure that the project (both intervention and evaluation parts) is executed appropriately as agreed upon in the proposal (Annex 2).

(2) The project organization should be finalized. The roles and responsibilities of the project team should be clear and agreed upon among all involved. All those in the project team should work closely together especially during the first six months in implementing and controlling the project. The efforts of UNILAB in distributing the supplements to non-pregnant women should be coordinated with other project activities.

(3) If it is necessary to adjust the project plan and strategies, the project team should make decisions based on sustainability. The project team should always mobilize local resources and utilize low-cost communication materials to ensure the replicability of the project approach.

(4) In promotion/education/communication activities, the project team should spend adequate time in creative development to ensure good message design for both the communication materials and training approaches.

(5) NS/DOH should work closely with WHO to ensure that the evaluation proceeds as planned. Due to the lack of experienced researchers, NS may benefit from external help.

(6) NS/DOH should provide administrative support to the project team to ensure good management of the project.

(7) Close coordination among NS/DOH, WHO and UNILAB should continue to ensure the success of the intervention and the evaluation. A degree of external supervision will be required to ensure that the data and samples are appropriately collected.

5. ACKNOWLEDGEMENTS

The writers wish to acknowledge with thanks the cooperation and hospitality extended to them by the government counterparts and friends during their visit.

ANNEX 1

LIST OF PERSONS CONSULTED

Mrs Adelisa C. Ramos	Director, NS-DOH
Dr Alex dela Cuadra	MS VII, NS-DOH
Mr Rolf Klemn	Country Director, HKI
Ms Ellen Villate	Deputy Director, HKI
Dr Melgabal Capistrano	Director, OMNI
Dr Alendri Cavellis	Hermatologist
Dr Juvencio Ordoña	Director, DIRFO I
Dr Alyle Ochotorena	PHO, Pangasinan
Hon. Felipe de Vera	Mayor, Calasiao
Hon. Rolando Domalanta	Mayor, Binmaley
Dr Lourdes Paulino	MS III, NS-DOH
Dr Marilyn Barza	MO-VII, BRL
Ms Unita Marie Etorma	ND V, NS-DOH
Dr Imelda Agdeppa	ND V, DIRFO I
Ms Melita Castillo	ND III, DIRFO I
Ms Marie Jacinto	ND II, PHO
Ms Mila Gutierez	--- do ---
Ms Francis Romatan	--- do ---
Dr Norberto Ojastro	MS III, PHO
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Mr Alexander Fernandez	Proprietary Business Division
Josel C Garcia	Proprietary Business Division
Dr Imelda B Ayaso-Sapalo	Medical Affairs Division
Ms Jojo Santos	Senior Researcher
Ms Joyce Bedelia Santos	Senior Researcher

ANNEX 2

PHILIPPINES WEEKLY IRON/FOLATE SUPPLEMENTATION: INTRODUCTION OF A NEW APPROACH TOWARDS CONTROLLING ANAEMIA AMONG WOMEN OF REPRODUCTIVE AGE

Participating Organizations

Nutrition Service(NS), Department of Health, Philippines,

Regional Health Office I, Department of Health

World Health Organization, Western Pacific Region

Responsible for project:

Mrs Adelisa Cifra-Ramos, Director of Nutrition Services, Department of Health

Dr Juvencio F Ordona, Director, Regional Health Office I, Department of Health, San Fernando, La Union

Project coordinator:

Dr Lourdes Paulino, Medical Specialist III, Standard Nutrition Intervention Division, Nutrition Services, Department of Health

Project managers:

Dr Imelda Angeles Agdeppa, Nutritionist-Dietitian IV, Regional Health Office I, Department of Health, San Ferando, La Union

Ms Unita Marie Etorma,ND-V,Plans and Programme Division, Nutrition Services, Department of Health

Dr Maryln Barza, MO-VII, Bureau of Research and Laboratories, Department of Health

Advisory group:

Dr Sutillak Smitasiri, WHO Consultant

Dr Arun Menon, WHO Consultant

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1. EXECUTIVE SUMMARY

1. Iron deficiency anaemia is an important problem of public health significance, especially in the developing countries. In the Western Pacific Region of WHO about 50% of women are anaemic. The main method of dealing with anaemia has been the distribution of daily iron supplements during pregnancy. The success of this approach, however, has been limited and a new approach "preventive supplementation" which aims to improve iron and folate nutrition and as a consequence prevent iron deficiency anaemia and neural tube defects has been suggested. Preventive supplementation is a long term strategy based on intense and responsible community participation.

2. Field and clinical trials comparing weekly with daily intake of iron in many groups of individuals including pregnant women have demonstrated the efficacy of weekly iron supplementation. Most of these trials, however, have been undertaken under supervision and were not based on preventative supplementation starting before pregnancy. ***Before suggesting that countries launch a new strategy it is essential to implement and evaluate the idea of preventive supplementation on a small scale in a selected area of the Philippines under the usual programme conditions of unsupervised intake.***

3. The objectives of the programme in the Philippines are:

   - To introduce preventive supplementation in women of reproductive age, starting with weekly doses of 60 mg elemental iron and 3.5 mg of folate before pregnancy and continuing with a weekly dose of 120 mg elemental iron and 3.5 mg of folate when pregnancy is detected, using community based social mobilization and communication to promote this new approach.

   - To assess the effectiveness of the combined strategy of social mobilization and weekly iron/folate supplementation in improving both the knowledge, attitudes and practice and the iron status of women of reproductive age in the project area.

4. The project areas Calasaio and Binmaley are located in Pangasinan Province and have a combined total population of 137 000.

5. Five major intervention strategies are proposed:

   - developing a new image for iron supplements;
   - strengthening municipal and barangay support for nutrition and health;
   - improving pre[1] and post-natal service of the existing health system;
   - introducing "women's supplements" through the market system; and
   - providing general community education/promotion programmes.

   The active involvement of local governments, nutritionist-dieticians at the Regional and Provincial Health Office, doctors and nurses at the Rural Health Units, midwives, Barangay Captains and Barangay Health Workers, school principals and teachers as well as the availability of the supplements are critical to the success of the intervention.

6. There are three aspects to the evaluation of the impact of the programme. The first, will look at changes in the knowledge, attitudes and practices of the study women in relation to

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[1] pre-natal= ante-natal

the programme. The second, will measure compliance and the prevalence of side effects. The third, is a laboratory based assessment of the iron status of the women.

7. The project will run from December 1997 to April 1999 and the estimated cost is US$66 220 (to be confirmed). This does not include either the contribution from UNILAB to social marketing or the provision of iron supplements for the programme

8. The project has been endorsed by the expert group on iron in collaboration with National Micronutrient Action Team of the National Nutrition Council and approved by the Program Managers of the Department of Health. The next stage is the conversion of this protocol into an operational plan.

2. INTRODUCTION

Iron deficiency and anaemia is an important public health problem, especially in the developing countries. It is estimated that 2150 million people (about a third of the world population), mainly pregnant women and children under five years of age (WHO, 1992) are affected by this problem. In the Western Pacific Region of WHO about 50% of women are anaemic. The consequences of this include higher maternal and neonatal morbidity and mortality.

The main method of dealing with anaemia has been the distribution of daily iron supplements during pregnancy. The success of this approach, however, has been limited for three main reasons: First, antenatal supplementation programmes have been ineffective partly due to the side effects generated by the high levels of iron recommended. Second, given the already high demands for iron during pregnancy, it is inefficient to try and correct pre-pregnancy iron deficiency during gestation. Finally, supplements have not been available in the amounts required. The realization that no significant progress has been made in the developing world in controlling iron deficiency and anaemia led to a new approach: preventive supplementation (1).

Preventive supplementation has as its primary goal to improve iron and folate nutrition , increase iron reserves and to prevent and correct mild/moderate iron deficiency anaemia before pregnancy so that women will not become anaemic in the course of pregnancy. An additional advantage of giving iron/folate supplements before pregnancy is to reduce the risk of neural tube defects due to folate deficiency. Studies have suggested that up to 70% of neural tube defects can be prevented by increasing folate intake (2).

Field and clinical trials comparing weekly with daily intake in many groups of individuals including pregnant women have demonstrated the efficacy of weekly iron supplementation in improving iron nutrition with progressive elevation of iron reserves and the correction of mild to moderate ferropenic anaemia (1). The rationale for using weekly iron doses is that the cumulative daily dose rapidly reduces the intestinal absorption of subsequent doses as well as that of dietary iron. The weekly dose schedule is not only a convenient unit of time, but also allows intestinal mucosal cells to turn over in humans before the next dose is provided. Thus by administering a supplementary dose every seven days, cells loaded with iron from a previous dose will have been shed. As a consequence iron absorption is increased while avoiding a constant luminal and mucosal iron overload likely to provoke symptoms and impair zinc absorption.

Efficacy trials, however, have been undertaken under supervision and ***before suggesting that countries launch a new strategy it is essential to implement and evaluate the idea of preventive supplementation on a small scale in a selected area of the Philippines under the usual programme conditions of unsupervised intake.***

2.1 Brief overview of the situation of iron deficiency and anaemia in Philippines

In the Philippines, the fourth FNRI-DOST national nutrition survey in 1993 (3) estimated the prevalence of anaemia at 44% for pregnant and lactating women ,about 50% for infants, 24% for adolescents and 50 % for the elderly.

A recent World Bank/Asian Development Bank study conducted recently (4) in the Philippines has found that in some areas only about 7% of pregnant women actually took the supplementation. The operational effectiveness of the programme (% pregnant women receiving iron X % adherence) is therefore likely to be very low.

The most common causes were: a low dietary intake (50% of RDA); low bioavailability of dietary iron due either to the absence of enhancers of absorption such as vitamin C or the presence of inhibitors; increased demand; and menstrual blood loss.

In the Philippines the limited effectiveness of the programme can be attributed to the following main factors: First, only about 10% of pregnant women actually know about iron (4). Second, there is a distinct lack of time for the health workers to motivate women to take the tablets. Third, the budget is insufficient to purchase the amounts of iron tablets required; and finally, the side effects of daily dosing have made pregnant women reluctant to take the prescribed medication. In general, Filipino women do not understand the consequences of anaemia.

During *Araw Ng Sanghap Pinoy* (ASAP) or micronutrient day, however, iron supplements (20 tablets) are provided free by the Nutrition Service for pregnant mothers around the country to increase their awareness. Pregnant mothers' awareness and adoption regarding iron supplementation are still very low.

Although an iron supplementation policy has been in operation for the last two decades, the prevalence of anaemia remains alarmingly high in women of reproductive age. The Nutrition Service of the Department of Health is therefore willing to try a new approach in dealing with iron deficiency anaemia.

3. GENERAL OBJECTIVES OF THE PROGRAMME

1. To introduce preventive supplementation in women of reproductive age, starting with weekly doses of 60 mg elemental iron and 3.5 mg of folate before pregnancy and continuing with a weekly dose of 120 mg elemental iron and 3.5 mg of folate when pregnancy is detected and for three months after delivery using community based social mobilization and communication to promote this new approach.

2. To assess the effectiveness of the combined strategy of social mobilization and weekly iron/folate supplementation in improving both the knowledge, attitudes and practice and the iron status of women of reproductive age in the project area.

3.1 Specific objectives

- To increase awareness in the community of the importance of iron to women of reproductive age.
- To promote adoption of weekly iron supplements among women of reproductive age.
- To determine the effectiveness of the programme in improving the knowledge attitudes and practices of women using weekly iron supplementation.
- To measure the improvement in the iron status of women of reproductive age using weekly supplementation.

- To estimate the compliance and the prevalence of side effects in women of reproductive age taking the supplements.
- To assess the feasibility of weekly supplementation in the Philippines.

4. PROJECT AREA

The project areas Calasaio and Binmaley are located in Pangasinan Province and have a combined total population of 137 000. In each municipality, the health services are accountable to the Mayors and not to the Department of Health. The details of each municipality are described below.

4.1 Calasiao

Some demographic variables are listed below:

Population	71 450
WRA (15-49 yrs)	14 933
Married women	8 594
Births	1 168
Crude birth rate	16/1000
Maternal mortality	8.5/1000
Population growth	1.8%
Babies birth weight < 2500 g	1%

The literacy rate in the municipality is 96%.

Sixty percent of the land is used for rice production, which occupies a quarter of the population.

In Calasiao, there are two Rural Health Units (RHU) each serving a population of about 35 000 and acting as back up 12 Barangay Health stations. Each RHU is headed by a doctor and there are 17 midwives in the municipality.

4.2 Binmaley

The population of Binmaley is 64 400 and there are 10 800 women of reproductive age.

Binmaley also has two RHUs serving populations of 36 135 and 28 265 respectively.

There are a total of 34 barangays. The service has 16 midwives.

The FNRI-DOST survey (3) found the prevalence of anaemia among pregnant women was 20%, 53% in infants and 8.5% in schoolchildren. Like most municipalities in the Philippines, Binmaley and Calasiao have not yet been able to provide enough iron supplements to all pregnant mothers. In practice, once the supply is no longer available in the health system, pregnant mothers are given a prescription to purchase the supplements from the market system. As a monitoring system for iron supplementation has not been in place, it is also not possible to estimate in a systematic way the level of compliance and health benefits among those who received them.

At present, most women in these municipalities visit the RHUs or BHWs for their three pre-natal check-ups, once they recognize their pregnancy (normally at the 3rd or the 4th month),

and then, usually at 5th, 7th month of pregnancy prior to delivery which occurs in a variety of settings from private clinics to at home.

Non-pregnant women of reproductive age in two localities do not receive iron supplements.

5. PROJECT STRATEGIES

This part of the document consists of two sections. The first, describes the intervention itself. The second deals with the evaluation.

5.1 The intervention

This is a programme to introduce preventive supplementation in women of reproductive age, starting with weekly doses of 60 mg elemental iron and 3.5 mg of folate before pregnancy and continuing with a weekly dose of 120 mg elemental iron and 3.5 mg of folate when pregnancy is detected and for 3 months after delivery, using community based social mobilization and communication to promote this new approach. Three months after delivery the women revert to the nonpregnant weekly dose of 60 mg iron and 3.5 mg of folate

Five major strategies are proposed:

- Developing a new image for iron supplements.
- Strengthening municipal and barangay organizational support for nutrition and health.
- Improving pre-post-natal service of the existing health system.
- Introducing "women's supplements" through the market system[2].
- Providing general community education/promotion programmes.

The targets are:

1. Eighty five percent of pregnant mothers will get access to the 120 mg supplements, 80 percent of those who get access will take the supplements and 70 percent of this group will take the supplements regularly;
2. Eighty five percent of lactating mothers will get access to the 120 mg supplements, 80 percent of those who get access will take the supplements and 70 percent of this group will take the supplements regularly; and,
3. Eighty percent of non-pregnant WRAs will get access to the 60 mg supplements, 70 percent of those who get access will take the supplements and 60 percent of this group will take the supplements regularly.

Details of these strategies are as follows:

(1) New image for iron supplements

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[2] This will be done in colloraboration with United Laboratories Inc. 66, United Street, Mandaluyong city, Manila.

During a preliminary field visit of the project team, it was observed that mothers did not perceive the existing iron supplements as valuable or attractive due to the way health personnel give them away. Thus, to create demand among women of reproductive age, it is necessary to change the image of iron supplements.

Iron supplements should be perceived by WRAs as a life-long friend whom they can depend on to enhance their physical and emotional well-being as they go through the different stages of their womanhood.

A concept statement is proposed: "All women experience physical, mental and emotional changes as they go through different life stages, especially during their reproductive age (from "PAGDADALAGA"). All women at this stage need iron supplements (60 mg elemental iron and 3.5 mg of folate) to enhance their well-being and curb this stressful deficiency. Moreover, when women are pregnant and for three months after their delivery, they will need iron supplements (120 mg elemental iron and 3.5 mg of folate) not only for themselves but also for their babies". Resilient, confident, dependable and caring are suggested as the character of the new supplements.

(2) Strengthening the organizational support for nutrition and health and the distribution of iron supplements

To ensure effective implementation of the project at the municipal and barangay levels, the project team will work with the municipal health officer (MHO) to integrate this project in the delivery of health services at the Rural Health Units and Barangay Health Stations. The MHO will see to it that iron supplements are available at all times. The Rural Health Midwives (RHM) in the different catchment areas will keep a record of clients provided with the iron supplements, their status (pregnant or lactating), the dose and the side effects experienced. The Barangay Health Workers (BHWs)/Barangay Nutrition Scholars (BNSs) will assist the RHMs do follow-ups through their regular home visits.

The project team, the NDs at regional and provincial health offices, the MHOs, the school officials and teachers and other key players of the project will work closely to ensure that the WRAs have access to iron supplements. Local officials such as the mayor and barangay councilmen will also play a lead role in this undertaking. Specific roles and responsibilities of each actor in the project will be discussed in two preparatory meetings prior to project implementation. UNILAB will see to it that the target population will have ready access to the iron supplements maintaining an affordable price agreed upon in the beginning of the project. There will be a meeting once a month during the first six months of the project and once every two months thereafter to monitor status or progress of the project. A monthly report (quantitative and narrative) will be submitted to the MHOs by the RHMs and the school teachers to the school principals, with copies furnished the project team and local officials.

Two advocacy meetings and activities will be undertaken with mayors of Binmaley and Calasiao, Municipal Health Officials, President of the Barangay Youth Association (SK) and Rotary A NS. The objective of the meetings is to get their continuing support and commitment to the project. Their roles and responsibilities as iron advocates and the kind of assistance they can commit will be identified. An action plan will be formulated by barangay for their advocacy activities.

(3) Improvement of service through the existing health system

This is aimed at pregnant and lactating mothers and health service providers at RHUs and BHSs. Pre- and post-natal service will be improved to include weekly iron supplements from the first visit to three months after delivery. Women who are identified early in their pregnancy at the baseline will be advised to see the health workers at the usual time. Those already on iron will be advised to continue taking daily iron supplements as routinely prescribed. Strategies include:

(a) <u>One-day orientation workshop for health personnel</u>

The objectives are:

- To increase knowledge of health personnel regarding effective interpersonal communication and counseling techniques.

- To update health personnel's knowledge and skills in health and nutritional care for pregnancy and lactation to improve pre-post-natal service delivery.

This one-day orientation workshop will be a rider to the training of project implementors.

(b) Provision of IEC materials for the RHUs/BHSs

IEC materials (i.e. posters, primers, flyer fans and calendar) will be provided to health personnel for their health and nutrition education classes and to make the pre-post-natal clinics, an attractive place of learning for the mothers.

(c) "Your midwife's suggestions" --- a communication material for mothers

During the project local media as well as local officials' interpersonal communication will encourage mothers to come to health stations for their check-ups as soon as they recognize their pregnancy. Trained midwives[3] will examine mothers and discuss the pregnancy. At the end of the sessions, the mothers will get "Your midwife's suggestions" (a pamphlet) which will remind them about the discussion with specific suggestions as to when they should visit the health stations again, what kinds of service they would receive and why these services are important for them and their children. This communication material is aimed particularly at the mothers' clear understanding about the pre-post-natal service.

About 40 iron supplements will be provided for each mother to cover her pregnancy and for three months after delivery. At every check-up an appropriate number of iron tablets will be provided. Twelve iron tablets will be given right after delivery.

(d) Cassette tapes programme and discussion

A 15-20 minute pre recorded series of information on iron will played during classes held for pregnant and lactating mothers by midwives in either the RHU or BHU. A 30-40 minute discussion on the subject will follow.

(4) Introducing "WOMEN'S SUPPLEMENTS" through the market system

This is aimed at non pregnant women of reproductive age (non-pregnant) and their families. With UNILAB as a partner of NS/DOH in this project component, the iron supplements will be formulated and packed in a flex form by fours and attached to a catch cover. The catch cover will contain the product and nutrition information. It will be referred to as the 1 month supplement pack (SS X 100 will be the standard packer size). The supplements are to be priced at P3.50 per tablet or P14 per pack of four for a month which can be purchased in major drugstores, local health clinics, hospitals and schools[4]. All pregnant women will receive the 120 mg iron/3.5 mg folate supplements will be available free to pregnant women as at present through the health system.

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[3] If the community is well organized and the midwives highly motivated, they will be able to individualize each woman's ability to come to the health facilities, for example women who live far away may not be able to come immediately after they know that they are pregnant. In these cases the newly pregnant women should have the benefit of PS even before they come to the health station.

[4] There is scope here for supplements to be made available through community and neighbourhood stores (sari-sari stores). These informed community store owners could be identified by clearly visible logos. This will facilitate availability and the sales records of these stores could be used as coverage particularly in conjunction with other records.

(a) School campaign

The objectives are

- To increase awareness and knowledge of 12-17 year old girls about the importance of nutrition; and iron supplements to reproductive health.
- To equip school teachers and school health officers with the knowledge about the project and communication/motivational skills to increase their ability to influence changes in iron supplementation and reproductive health and nutrition practices among the target WRAs.[5]

Strategies include;

- Briefing school health officials of the importance of the project
- Giving out hand-outs and brochure as guides in educating/motivating their students particularly the WRAs
- Integrating standard messages about women health, menstruation, iron and iron deficiency anaemia into the existing Home Economics, Physical Education and Health subjects
- Installing posters on the schools' bulletin boards and stickers in ladies rooms
- Conducting symposiums when rural health officers will be invited to talk about the project
- Cassette type programmes and discussion for students.

(b) Cassette type programme and discussion for non-pregnant WRAs

A 15-20 minute pre recorded series of information on iron will played during special classes on health and nutrition by midwives in either the RHUs or BHUs. A 30-40 minute discussion on the subject will follow.

(c) Information campaigns at the municipal and barrage levels

- Billboards, banners, posters will be used to inform the WRAs about the new iron supplements.
- Billboards in market places
- Posters in Governors, Mayors, Barangay Captains Offices.
- Banners in Hospitals, RHU,BHS and streets

(d) Promotional activities

An iron day will be launched with a motorcade (tricycles or pedicabs), or "Alay Lakad", from the barangay project site to the school ground where the programme will be held. The local press will be invited to cover the events. The mayors, barangay officials, health officials from the national, regional, provincial and municipal level will be present during the activity. The festive mood of the occasion should help awareness and appreciation about the project and encourage the targets for intervention as well as the community to participate.

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[5] The intention here is to liberate health workers from the main responsibility of improving iron and folate nutrition.

Other activities will be based around a Raffle Promo. Raffle coupons will be given to the Health Workers for distribution to the WRAs. The coupon will entitle the holder to join the promo, simply by buying the 1 month supplement pack and by attaching to it a proof of purchase (receipt). Weekly raffle draw will be conducted. Prizes to be won are wristwatches, T-shirts and ballpens. Cash prizes will be given during the grand draw. The buyer and health workers who gave the coupon will each win the same prize. A cash prize will also given to the rural health unit with the most number of coupons entered in the promo.

(5) General community education/promotion programmes

The objectives are:

- To increase awareness about the importance of reproductive health and nutrition among the general population. and;
- To increase practical knowledge related to reproductive health and nutrition for the target groups.

Strategies for achieving these include;

(a) Radio programmes

General information about iron will be aired through the local radio targeting the general population, the objective of which is to create awareness about the importance of iron to health and nutrition.

(b) Public address programmes

At least 3 days (2 times in each day), a public address system in various localities will provide information, education, communication related to the project. A project cassette and a monthly package of 10 ready-to-read (by midwives, BHWs) messages will be provided.

(c) Project calendar

This calendar will be designed to remind WRAs to take their iron supplements and will be distributed one month after the supplements are launched. WRAs will be asked to return their empty supplement packages with written comments on their first month experience in taking the new supplement. Calendars will be given for their effort.[6]

(d) Integrating project education messages in existing health activities

The project team will work with the MHOs and RHUs/BHSs' staff to highlight project activities in any health promotion activities which will be organized during the implementation of project.

5.2 Evaluation

This is essentially an evaluation of the impact of the programme. There are three aspects to this evaluation. The first, will look at changes in the knowledge, attitudes and practices of the study women in relation to the programme. The second, will measure compliance and the prevalence of side effects. The third, is a laboratory based assessment of the iron status of the women.

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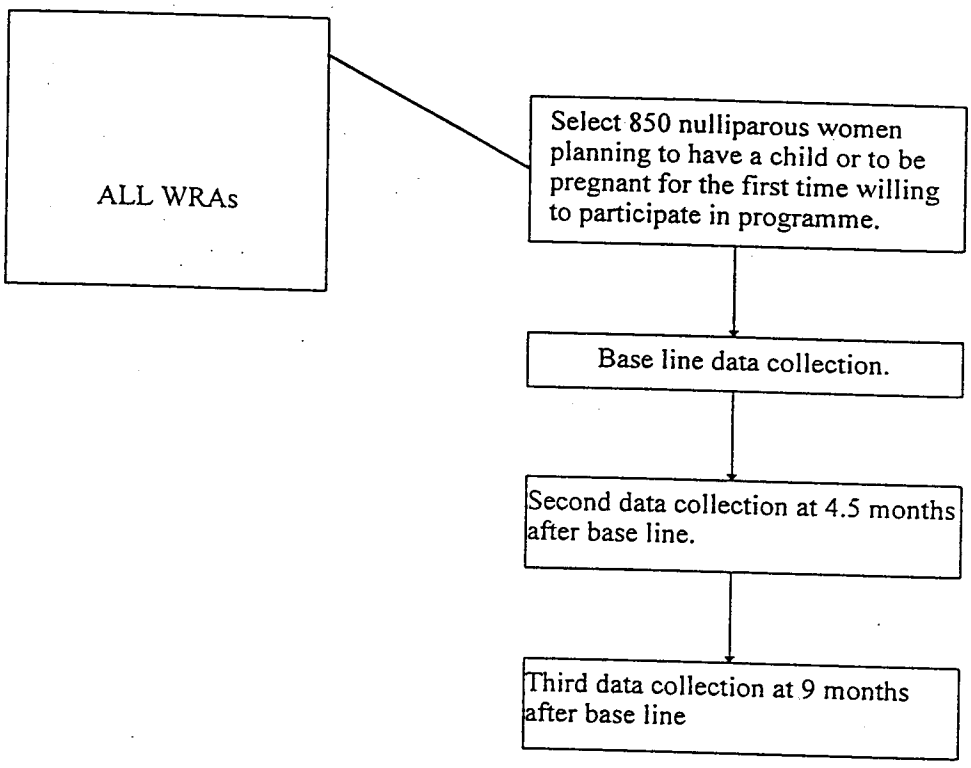
[6] An alternative would be to give out the calendars when the supplements are launched. The first month's experience (filled calendars and written experience) could be returned to the project coordinators.

5.2.1 Methods

All women of reproductive age in the municipalities will have the opportunity to participate in the programme to introduce weekly iron supplementation as detailed in section 5.1 of this proposal.

5.2.2 Study design

Approximately 925 women, nulliparous and planning to have a child[7] or pregnant for the first time and willing to participate in the evaluation will be selected. This cohort will have information and blood collected prior to the intervention and 4.5 months and 9 months after the programme has been established. This is schematically represented below.



Considering that a screening procedure is being introduced with the "baseline tests" many pregnant women will be identified. Those in the early stages of pregnancy will be advised to go to the health workers for the pre-natal care at the usual time (in the second trimester). Women who are in the later stages of pregnancy should have been started on the current arrangement of daily iron supplementation (120 mg elemental iron 0.5 mg of folate per day) using the pills provided by UNICEF. The rationale for daily supplements is that they have not received iron prior to pregnancy. The NS must make certain that these tablets are available at least for the duration of the programme.

Women who start on weekly supplementation with 60 mg elemental iron and 3.5 mg of folate will continue with a weekly dose of 120 mg elemental iron and 3.5 mg of folate when pregnancy is detected and for three months after delivery. These supplements will be available

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[7] Women not planning to have a child could be included in group C.

free from the health centres as at present. At the end of this period, they will have to purchase iron as other non-pregnant WRAs.

After delivery both groups of women will be given weekly iron supplementation for three months. Both UNILAB and NS are very keen to look at the impact of the programme on adolescents. These will be in the form of a baseline survey at the same time as the second survey for the cohort women and a final survey when the main cohort have their last survey.

The advantages of the above approach[8] are that all women will be seen together making the collection of samples and information efficient and allowing the samples processed together. The main disadvantage could be losses to follow up as Filipino women do not like having samples of blood taken.

5.2.3 Main tools for the evaluation

These are:

(1) Questionnaires for the collection of information.

(2) Laboratory tests measuring the iron status of the study women.

Questionnaires

The main tool for gathering information is to be a series of questionnaires. The first draft has been designed and tested. Attention will have to be paid to the quality of data collected. In addition to general issues such as daily checking of information which most of the investigators here at NS are familiar with, in order to validate the collection of information, 5% of questionnaires randomly selected should be repeated using different interviewers. This, however, may be impractical in Philippines and reliance may have to be placed on checks as outlined in the flow diagram in Appendix 1.

Data entry

SPSS is the package to be used. Double entry could be used to eliminate data entry errors.

Laboratory tests

1. 7.5 mls of venous blood will be taken in the field by trained technicians just prior to at 4.5 months and at 9 months after the introduction of the intervention. Haemoglobin will be done at the Regional Hospital using a CELLTAC machine. The results can be communicated to the mother the following day.

2. The laboratory tests[9] to be conducted at BRL are:

    - Ferritin; All individuals will have ferritin measured by ELISA using the RAMCO kits.

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[8] The master protocol calls for testing to be carried out at delivery. This is not feasible either in the Philippines or in Vietnam. None of the Health Centres are equipped to collect an store blood at the relevant temperatures

[9] In order for the laboratory to become familiar with the kits it is proposed that prior to the testing the subjects the technicians should test 100 other randomly selected individuals possibly from NS itself. It is also proposed that 20 % of the samples randomly chosen be sent to Professor Viteri at Berkeley to ensure quality control and for the measurement of Vitamin A and Folate levels. If resources are available the C reactive protein could be measured as an indicator of infection.

- Transferrin Receptor; A random subsample of all individuals will have their Transferrin receptors measured. This is also an ELISA using the RAMCO kits.

For more details see Appendix 1.

Exclusion criteria

1. Severe anaemia

   Hb< 70g/l for pregnant women

   Hb< 80g/l for non-pregnant women

These individuals will be treated according to standard practices. In Philippines, this means that the woman would be referred immediately to the health worker and be started on daily iron (120 mg elemental iron 0.5 mg of folate per day). This would continue to receive these (provided iron is available) until the haemoglobin returns to normal.

2. Women with known acute/chronic diseases(as diagnosed by other health professionals such as doctors) that cause anaemia.

These will be established through general history taking only. The project does not allow for such conditions (Haemaglobinopathies, inflammatory diseases, chronic infections, endocrine disorders, renal insufficiency and liver disease) to be excluded using laboratory indices.

The original protocol also included hookworm and malaria as exclusion criteria. There is no malaria in the project area. Hookworm prevalence in the area is unknown and there are no resources to conduct stool tests.

Analysis

At the end of the intervention, the cohort will be divided into three groups (A, B & C) and compared with the group (D) already pregnant at the start of the intervention in terms of the iron status: The adolescent girls will form a separate group E.

Group A.

175[10] women who become pregnant within 3 months of the beginning of the intervention. These women will have taken weekly supplements (60 mg elemental iron and 3.5 mg of folate) for at least 3 months (an average of 4.5 +/- 1.5 months) before the beginning of the 2 nd trimester of pregnancy (weekly dose of 120 mg elemental iron and 3.5 mg of folate when pregnancy is detected) and will deliver between 9-12 months from baseline.

Group B.

175 women who become pregnant between 4-6 months after the beginning of the intervention. These women will have taken weekly supplements (60 mg elemental iron and 3.5 mg of folate) for at least 6 months (an average of 7.5 +/- 1.5 months) before the beginning of the 2 nd trimester of pregnancy (weekly dose of 120 mg elemental iron and 3.5 mg of folate when pregnancy is detected). These women will not have delivered at the end of the programme.

Group C.

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[10] These are approximate numbers only

400 women who will not become pregnant during the programme. These women will have taken weekly supplements for about 12 months by the end of the programme.

Group D.

175 women who are pregnant at the start of this programme and will be treated with daily supplements (120 mg elemental iron and 0.5 mg of folate). The total supplementation received by this group will vary according to when the women present in pregnancy.

Group E.

Approximately 125 girls taken from the high schools in the areas. These girls will be surveyed in July and November.

The sample size is consistent with that required to distinguish a difference in haemoglobin concentration between any two groups or between two times of sampling of 5g/l at a 95 % significance level (one sided) and with a power of at least 90%. A dropout rate of about 30% has been allowed for.

The iron status of the groups will be assessed as follows:

Groups	Test 1(base line)	Test 2 (4.5 months)	Test 3 (9 months)
A	non-pregnant	2nd trimester	3rd trimester[11]
B	non-pregnant	I st trimester	2nd trimester
C	non-pregnant	non-pregnant	non-pregnant
D	1st/2nd/ /3rd trimester	2nd/ /3rd trimester or after delivery	No sample
E		Test 1	Test 2

[11] As it is not possible to collect blood prior to delivery, it will have to be done in the third trimester of pregnancy

6. TIMELINES

Activity	Time
Preparation for intervention	December 1997- February 1998
Visit to municipality to explain evaluation	Mid December 1997
Questionnaire design/ pretesting/printing	Mid November to Mid January 1998
Compilation of register of study women	1-20 January 1998
Training of NS staff questionnaires	February 1997
Intervention	March 1998-November 1998
Baseline survey	Last 3 weeks February 1998
Checking questionnaires for completeness	
Checking validity of information collected	
Development of database	March 1998
Data entry	
Second survey (4.5 months)	July 1998
Checking questionnaires for completeness	
Checking validity of information collected	
Laboratory testing	
Data entry	
Third survey (9 months)	November 1998
Checking questionnaires for completeness	
Checking validity of information collected	
Laboratory testing	
Data entry	
Analysis	December 1998
Report writing	February -March 1999
End of project meeting	April 1999

7. BUDGET

7.1 For intervention

1. New image development	
2. Organizational support activities	US$ 5 000
• Meetings for discussion of establishment of project	
• Monitoring activities of organizational groups	
• Review meeting (2)	
3. Health services promotion	12 000
• Training workshop 1 time at municipality (*)	
• IEC materials	
• Your Midwives Suggestion	
4. Women's supplementation	2 000
• School Campaign	
• Municipal and barangay campaign	
• Promotional activity	
5. General Education Activities	1 000
6. Unforeseen works	1 000
Total	US$21 000

7.2 Estimated budget for evaluation activities of project

A. Collection of data

Component	Amount in US dollars
Training for survey	1 000
Baseline survey	2 500
Second survey	2 500
Third survey	2 500
Costs for transportation	3 000
Food for subjects	2 500
Data handling	1 000
Miscellaneous	2 000
Total	**17 000**

B. Laboratory tests[12]

Component	Amount in US dollars
Costs of collecting and transporting samples	2,000
Vacutainers, needles, cotton, alcohol, tape etc	3,200
Celltac material	2,000
Paper/envelopes/pens/ diskettes	1,000
Lamps for plate readers	1,000
47 Ferritin kits	4,700
19 transferrin kits	10,570
Total	25,470

Total project	**$66,220**[13]
WHO contribution	**$53,100**
NS contribution	**13,120**

Please note that this does not include either the contribution from UNILAB to social marketing or the provision of iron supplements for the programme.

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[12] These estimates includes those for adolescent girls which was not part of the master protocol.

[13] This total cost includes the cost of an NGO, The Nutrition Foundation of the Philippines acting as an intermediary between WHO and NS for the transfer of $27,500. This has arisen because if WHO transfers the money directly to the DOH through the government it will take 6 months for the NS to receive the money thus delaying the project. The cost is 10% or $2750 (to be confirmed).

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Viteri F. E. Iron supplementation for the control of ion deficiency in populations at risk. Nutrition Reviews 1996;55:195-245

Wald NJ, Bowler C. Folic acid and the prevention of neural tube defects. BMJ 1995;310:1019-20.

Fourth National Nutrition Survey Philippines 1993. Food and Nutrition Research Institute. Department of Science and Technology. August 1995

World Bank/Asian Development Bank Project Preliminary report (1997). EXACT TITLE AWAITED

APPENDIX 1

LOGISTICAL ISSUES: GENERAL GUIDELINES

The Register

The register for women participating in the study should be completed in January. The 925 eligible women planning to have a FIRSTchild or pregnant for the FIRST timewill be identified by the barangay health workers.

The municipality codes should be Calasaio (C); Binmaley (B). The barangays should be numbered in each municipality, i.e. Binmaley 01-19; Calasaio 01-20. Each woman in each barangay will have a code number 01 to 99. The month of survey could be added at the end. The unique code for each woman will consist of municipality, barangay no. and individual number and month of survey, e.g. the first woman in Binmaley in the first Barangay will be B01/01; the next woman, B01/02, etc. Therefore for the baseline survey in February the code would be B01/01/02

The register pages will look like:

Barangay: _____

Unique code	Name	Address	Date of birth	Date of marriage	Consent to participate

Appendix 1

Process

- List barangays.
- For each barangay, complete a skeleton as above.
- Send each BHW the skeleton and ask him/her to fill it in.
- It must be sent back to the project manager, Dr Imelda Agdeppa within two weeks.

The rough register will be checked and then sent back to the BHW for confirmation just prior to the survey.

Organization of the survey

1. All questionnaires and vacutainers must be pre-labelled with waterproof markers.

2. Pick one or two barangays as pilots try out procedures on a Friday so that problems can be ironed out over the weekend.

3. At each barangay the BHW will have identified the women to be studied who will have been enrolled in a register.

4. The women will present to the project manager who will check her against the master register and hand her the questionnaire and tubes.

5. The woman then proceeds to the individual who will fill in the questionnaire.

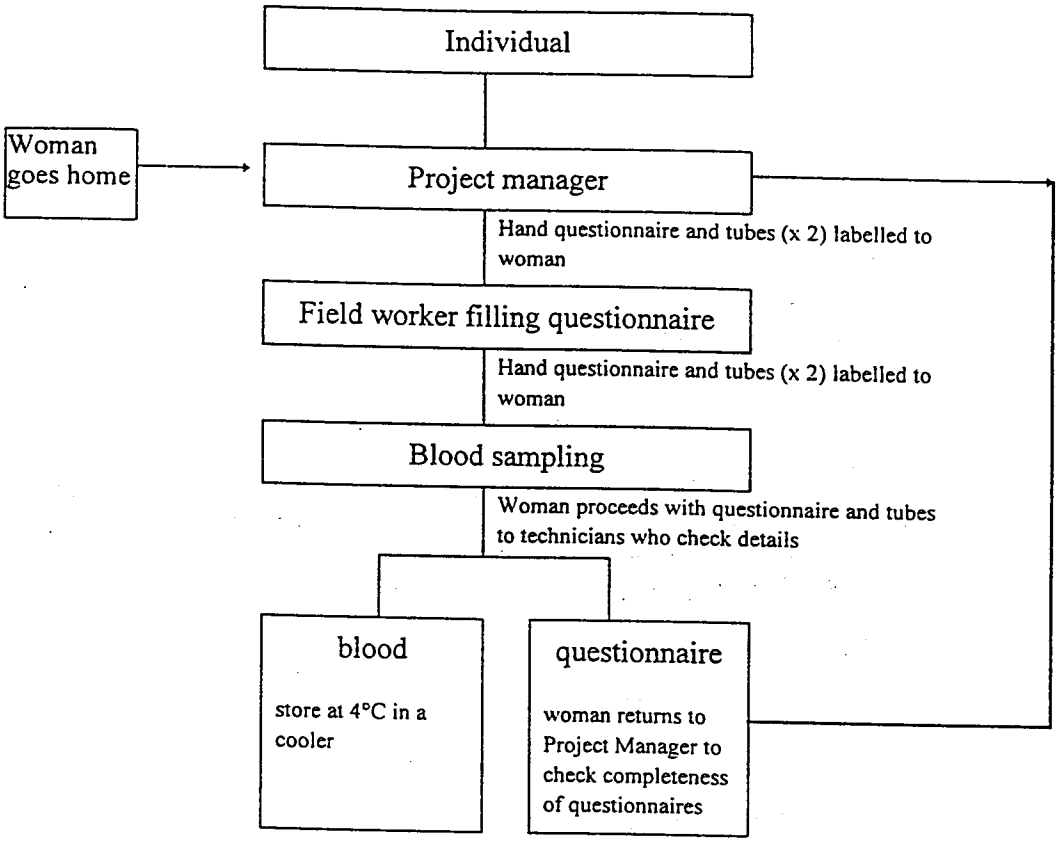
6. The woman, with the filled questionnaire and tubes will be seen by the technicians who after checking that they have the right person (i.e. woman's name must match that on the questionnaire and tubes) take the blood samples.

7. The woman takes the questionnaire back to the project manager for to ensure the questionnaire is correctly filled out.

8. The questionnaires and blood samples will be stored appropriately. All blood samples must be protected from light.

Appendix 1

The flow should resemble the diagram below:



Handling of samples

2.5 mls of EDTA sample and 6 mls of blood for serum will be taken. Transport specimens at 4 C (No dry ice use coolers). All samples must be protected against light. At the regional laboratory Hb tests will be conducted. The remaining serum will be separated into 2 Eppendorf vials transferred to Manila on ice and stored at-20^{O} C at BRL. Serum samples can only be stored at -20^{O} C for a period of 6 months.

Requirements

CELLTAC (already in place in San Fernando)

Reagents:-

ISATONAC	18l
CLEANAC	5l
HAEMOLYNAC	1.5l

Test results ⇒ back to woman the following day

1 eppendorf tube ⇒ ferritin and transferin receptor at BRL.

Appendix 1

600 randomly selected (200 from each survey) samples to be sent to ProfessorViteri for confirmation of values and for Vitamin A and serum folate levels.

Total tests

Specimens at baseline	925
at 4.5 mths	925
at 9 mths	700
	2400
Losses	350
Adolescents	250
Total	3000

Randomly select 1000 specimens for transferrin receptors.

If a -70^{O} C freezer is not available the ferritin and transferrin receptors tests should be carried out in two batches. It may be preferable to order the ferritin and transferrin kits in two batches the first to be delivered in August and the second in November.of 1998 considering that the receptor kits only have a shelf life of 6-12 months.)

Handling the questionnaire

1. DOH send the questionnaire to WHO
2. WHO photocopies each questionnaire
3. Returns original to DOH
4. Send copy to Arun Menon
5. Arun Menon makes a database at the University of Otago. Enters data. Sends data back to NS/DOH.
6. Arun Menon does the preliminary analysis.
7. Sends data and preliminary results to Milan for confirmation.

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