

PN-AB6-603
69071

REPUBLIC OF MALI

**Field Research in Macina for
Vitamin A Communications**

March 5 - 22, 1990



NUTRITION COMMUNICATION PROJECT
Academy for Educational Development
1255 23rd Street, N.W.
Washington, D.C. 20037

DAN-5113-Z-00-7031-00
936-5113

The Macina research activity was funded by the United States Agency for International Development, Office of Nutrition with Vitamin A funds through PIO/T 936-5113-8361130 and CARE/Mali. Technical assistance to develop the Mali Nutrition Communication Project was provided by USAID/Mali through PIO/T 698-0421.88-3-90029.

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TABLE OF CONTENTS

ABBREVIATIONS	iii
I. EXECUTIVE SUMMARY	1
II. INTRODUCTION	4
III. BACKGROUND	5
A. Overview	5
B. Objectives	6
C. The Research Site: Macina	8
D. CARE Classifications and Ratings	9
IV. RESEARCH SITES, METHODS AND SCHEDULE	10
A. Village Research Sites	10
B. Methods	11
C. Schedule	15
V. FOCUS GROUP FINDINGS	18
A. Life in the Village and How it Has Changed	18
B. Responsibilities of Boys and Girls	20
C. General Feelings Towards Having and Raising Children	21
D. Diet During Pregnancy	32
E. Success or Luck in Raising Children	32
F. Knowledge of Night Blindness (In Children)	34
G. Good Nutrition for Children	35
H. Food Preferences	36
I. Availability of Vegetables	38
J. Communication Topics	38
K. Results of Message Testing	40
VI. FOOD AVAILABILITY AND CONSUMPTION	43
A. Introduction: How the Data were Collected	43
B. Daily Diet	44
C. Vitamin A Rich Foods	44
D. General Recommendations	58
E. Specific Recommendations	58

VII.	INTERPRETATION	63
	A. Predisposing Factors	63
	B. Enabling Factors	67
	C. Reinforcing Factors	69
VIII.	RECOMMENDATIONS	71
	A. Building the Platform: Step One	71
	B. Developing and Delivering Messages: Step Two	71
	C. Preliminary Strategy	72
	D. Messages That Appeared to be the Most Promising From the Focus Group Pretesting	74
	E. Additional Recommended Messages for Future Pretesting	75
IX.	MEDIA	77
	A. Educational Supports	77
	B. Mass Media	79

Appendix A	Project Outline: Communication for Vitamin A
Appendix B	Reactions to Messages and Supporting Proverbs
Appendix C	Interview Guidelines
Appendix D	Bambara/English Glossary

Abbreviations

AED	Academy for Educational Development
A.I.D.	Agency for International Development
DNEF	Direction Nationale de l'Éducation et Formation (National Directorate of Education and Training)
DRSP	Direction Regionale de la Santé Publique (Regional Directorate of Public Health)
DSF	Division de la Santé Familiale (Division of Family Health)
GRM	Government of the Republic of Mali
HDO	Health Development Officer
HKI	Helen Keller International
IEC	Information, Education and Communication
IFAHS	Integrated Family Health Services Project
JNSP	Joint Nutrition Support Project (UNICEF & WHO - In French abbreviated as PCAN)
MCH	Maternal and Child Health
MNCP	Mali Nutrition Communication Project (MSP, AED)
MSP/MAS	Ministère de la Santé Publique/Ministère des Affaires Sociales (Ministries of Public Health and Social Affairs; One Ministry divided into two in May 1990.)
NCP	Nutrition Communication Project (ST/N, AED)
NS	Nutrition Section (of MSP)
NGO	Non-governmental Organization
ORT	Oral Rehydration Therapy

PD&S	Project Development and Support (A.I.D. funding)
PMI	Protection Maternelle Infantile (Maternal & Child Health Centers)
P/N	Porter/Novelli
PRITECH	Technologies for Primary Health Care (AID Program managed by Management Sciences for Health)
PVO	Private Voluntary Organization
SIES	Section Information Education pour la Santé (Health Information and Education Section)
SMI	Santé Maternelle Infantile (Maternal Child Health - MCH Centers)
ST/N	A.I.D. Bureau for Science and Technology, Office of Nutrition
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development (Mission)
VITAP	Vitamin A Technical Assistance Program, Helen Keller International
VMI	Vision Mondiale Internationale (World Vision International - Mali chapter)
WHO	World Health Organization

ACKNOWLEDGEMENTS

This study represents the collaborative effort of many individuals and organizations. Mr. Djibril Semega, Director of the Nutrition Service of the Family Health Division of the Ministry of Public Health, must be credited with helping to design the study and supervising its implementation. CARE/Mali program managers Kathy Tilford and Lisa Nichols provided indispensable guidance and logistical support. The technical input, staff assistance and hospitality provided by the CARE/Macina project, directed by Mr. Mark Chorna, can not be overestimated. We extend our appreciation to Mark, Diarra, Sita, all the monitrices, the office staff, chauffeurs and the Guest House crew. Ms. Dominique George, who directs the CARE gardening project (DAZA), provided both food and facts, for which we are grateful.

Participants in the three week study included Ministry of Public Health personnel from the national level (Mariam Haidara), the regional level (Ousmane Cissé), the circle level (Ibrahim Soumounou) and the arrondissement level (Jean Koné, Amadou Dolo); CARE monitrices (Traoré Mariam Famanta and Daffa Diallo); Dandara Kanté from the Ministry of Education; and USAID/Mali's Child Survival Assistant, Fanta Macalou. All participants played dual roles as "researchers-in-training" and "resource persons." For example, Mmes. Haidara and Macalou facilitated all protocol arrangements, which included meetings with regional and circle level health and police officials; the CARE monitrices were not only full participants, but indispensable guides; and Dr. Soumounou and J. Koné (the health center nurse at Sarro) provided numerous insights into rural health care and nutrition. That everyone gave their all for the study, which included leaving behind their families and home office duties for three weeks, is gratefully acknowledged.

We deeply appreciate the institutional support and individual insights provided by the Ministry of Health (Dr. Suzanne Bocoum in Bamako and Dr. Diakité in Ségou), CARE International (Ms. Catharine McKaig and Dr. Mary Ruth Horner), the Joint Nutrition Support Project (Drs. Sylvani Jamet and Marco Vigano, Ségou), Helen Keller International (Ms. Lauren Blum), the Academy for Educational Development (Ms. Margaret Parlato), the Office of Nutrition (Drs. Frances Davidson and Nicolaas Luyckx) and the Africa Bureau of A.I.D. (Ms. Neen Alritz).

Finally, the support of USAID/Mali has been unflagging. While you would say you are only doing your jobs, your graciousness and commitment are not taken for granted.

I. EXECUTIVE SUMMARY

At the request of the United States Agency for International Development (USAID)/Bamako, Claudia Fishman, Deputy Director for the Nutrition Communication Project (NCP) at the Academy for Educational Development and AED consultant, Dr. Katherine Dettwyler, (Department of Anthropology, Texas A & M University), implemented a Vitamin A Communications Field Research activity in the Macina circle of Ségou, Mali March 5 - 22, 1990. Dr. Fishman supervised the activity, while Dr. Dettwyler provided the primary technical input and was present throughout its duration. Mme. Dandara Kanté, a nutritionist working for the Ministry of Education (DNEF), facilitated all training activities and provided translations, as needed, for the American consultants.

A six person research team, including Mme. Kanté, Mme. F. Macalou (USAID/Mali), Mme. M. Haidara (Nutrition Section, MSP), M. O. Cissé (DRSP, Ségou), Mme. M. Famanta Traoré and Mlle. D. Diallo (CARE, Macina), joined by Dr. I. Soumounou, M. J. Koné and M. A. Dolo from the health centers in Macina, Sarro and Saye, conducted qualitative and market survey research on factors affecting maternal nutrition and infant feeding practices in 15 villages in the Macina circle.

Fishman and Dettwyler led the research team through two days of orientation and training in the research methods (nutrition market survey, focus group and in-depth interviews). At this time, specific Vitamin A source foods as well as villages representing various levels of health awareness [non-participating (*villages vierges*), currently receiving information from CARE (*villages en formation*) and villages that were nearing self-maintenance of health practices, (*villages en stabilisation*)] were selected for study.

Following refinement and pretesting of all questionnaires, the team conducted two market surveys and 16 focus group interviews during the time allotted. The team prepared detailed summaries of their findings and drafted a preliminary multi-audience communications strategy for improving general nutritional status, and increasing consumption of Vitamin A rich foods.

RESULTS

The team collected in-depth material on the following topics:

- Dietary practices of pregnant women (food availability, prohibitions, recommendations and preferences);
- Current child feeding practices and attitudes;
- Seasonal availability and price of Vitamin A source foods;
- The participation of men in improving the dietary regime of pregnant women and young children;
- Reaction of different population segments to hypothetical food behavior changes suggested by the researchers;

- Appropriate communication channels and media for rural populations;
- Appropriate training and educational materials for village health and gardening project agents (CARE/MSPAS Macina Child Health Project Monitors; DAZA agents and the MSPAS regional medical staff);

HIGHLIGHTS OF FINDINGS

Attitudes Concerning Prevention, Food and Health

One of the most striking findings is that villagers (both men and women) who have been "sensitized" by CARE health monitricers express their belief in "preventing illness," say there is a "relationship between good food and good health," that "pregnant women need special treatment, including more food," and that if "men can not provide these things then women must get them for themselves." These feelings of control, dramatically absent in non-sensitized villages, might represent a framework of positive thinking that is necessary before other, more targeted nutrition messages can be absorbed.

The primary tangible difference between sensitized and non-sensitized villages seems to be collective action followed by visible, positive results. And conversely, in non-sensitized villages, the occasional effort to immunize a child, or treat night blindness is perceived as "far out" behavior that the individual feels compelled to disclaim in a focus group setting.

It would not be a large step to convince villagers currently practicing immunization, village hygiene and water filtering that the "illness of insufficient food," as malnutrition can be termed, and "night blindness," a well-known condition, can also be prevented. But it might be an impossibly large step for villagers who neither understand the concept of prevention, nor feel that their actions have any impact on their lives.

Vitamin A Deficiency: Night blindness

In all villages, night blindness is well known, and everyone can identify pregnant women and children currently so afflicted. Most people are unaware of the cause (insufficient consumption of "Vitamin A" foods), however, there are a number of traditional cures, ranging from very effective to possibly dangerous: eating goat liver, eating "snake-fish," applying plant juice to the eyes and drinking the water from the bottom of the river boat (*pirogue*). In addition, at least one person in every village said that for night blindness, one purchases a capsule in the market place of Vitamin A. Our survey revealed that uncontrolled capsules are available (but not openly) for 100 CFA.

It is our understanding that an "Essential Medicines" program will be put in place in Mali in the near future. While few villagers report purchasing Vitamin A capsules in the market, the risk of Vitamin A toxicity is real if several capsules are consumed in a given six month period. This does not seem to be a risk in Macina at the moment, but should be kept in mind to avoid inadvertent promotion of Vitamin A capsules.

CONCLUSIONS/RECOMMENDATIONS

The Focus Group Research suggests that the population would be receptive to a number of behavioral changes, and the market survey shows that generally nutritious, and specifically Vitamin A-rich foods, are available throughout most of the year. The recommendations in this report are therefore geared to increasing consumption of Vitamin A rich foods according to their seasonal availability. Even in villages with positive knowledge and attitudes, often only men consume what is designated as "good food" due to the perceived cost of these foods in money or preparation time, and the social factors that give them priority of access. There are nutritious, even tasty foods available that are not particularly esteemed (including milk, fruits and vegetables). These do not fall into the category of "good food" (mostly meat and fish) that should be "reserved for men and elders," and therefore could be exploited as foods particularly suited to children or pregnant women in general. These same foods could be promoted as "preventative" foods, while more expensive, more highly esteemed and less available foods, such as animal liver, could first be promoted as "curative" foods for "nightblindness." Therefore, specific behaviors targeted for change include:

- Increasing gardening efforts for Vitamin A rich vegetables (to be directed to older women who do the gardening);
- Increasing consumption of target foods, specifically:
 - Adding Vitamin A-rich vegetables to sauces and insuring that young children get more sauce on the starch base (directed to mothers);
 - Preparing pureed vegetables for young children (directed to older children who often prepare foods);
 - Purchasing liver for pregnant women and young children on market days (directed to men);
 - Drinking milk when pregnant (directed to women);
- Drying fruits and vegetables in the shade to conserve Vitamin A which is destroyed by ultraviolet light (incorporated in gardening project messages);
- Providing money or ingredients to women to follow suggestions above (directed to men).

NEXT STEPS

The results of the formative research will be used to develop a strategy linking interpersonal communications delivered by village health monitors with village level "mass media," (masked dancers, plays, market posters, etc.). The mass media strategy will include:

- Definition of the target behaviors and population segments (above);
- Identification of appropriate modes of communicating (e.g. young men - radio; older men - village counsel meetings; young women - market posters, health monitors; children - school coloring books, Koranic teachers)
- Development of themes, messages and media; and,
- Creation of a communications campaign implementation plan.

Two forms of interpersonal communication supports are envisioned: Instructional supports for monitrices or other health workers to use while sensitizing villagers during the "training" phase, and "leave behind" materials to be used by village health committees during the "stabilization/sustainability" phase.

A strategy and materials development workshop is scheduled for June 18-22, to be immediately followed by pre-testing field trips to Macina, Dioro and Koutiala. A baseline survey for evaluation purposes is scheduled for October. In addition, NCP/Mali has drafted separate guidelines for detecting protein-energy malnutrition and kwashiorkor, and counselling mothers about both preventive and recuperative feeding. [*See Training Module: Identifying Children with Malnutrition and Tips for Counseling their Parents*]. This module will be revised with in-put from the MSP/MAS and cooperating PVOs this June, and field-tested by the Macina Child Health Project in 1990-91.

II. INTRODUCTION

Vitamin A deficiency is a worldwide problem that afflicts millions of children. It can impair night vision, reduce immunity to infections, and in extreme cases, induce incurable blindness and contribute to children's deaths. Even in its mildest form, this deficiency may seriously affect children's health and development as Vitamin A maintains the effectiveness of the mucous membranes lining the respiratory and gastro-intestinal tracts. Children with even mild Vitamin A deficiency develop respiratory diseases and diarrhea at two to three times the rate of children with normal Vitamin A status, and mortality from these diseases is higher in deficient children as well. Thus, although one of the first symptoms of Vitamin A deficiency is "night blindness" the primary significance of eliminating Vitamin A deficiency lies in its potential impact on morbidity and mortality rates among infants and children.

Fortunately, there are methods to reduce and prevent Vitamin A deficiency. Studies in Indonesia and Nepal report a 20-34% reduction in childhood deaths as a result of Vitamin A capsule distribution programs. The World Health Organization (WHO) and other international agencies provide large dose Vitamin A supplements. However, to combat this problem in the long run, vulnerable families and communities must become responsible for preventive measures.

A "nutritional" approach to improving Vitamin A status results in overall better nourishment, as foods rich in retinol (preformed Vitamin A) usually also contain protein, iron, calcium, Vitamins D and K and lipids; and foods rich in the Vitamin A precursor, beta-carotene, also often contain folic acid, calcium, Vitamin C, iron and calories. Similarly, any improvements in overall feeding behaviors for children will result in children who are less at risk for Vitamin A deficiency. Hence, this intervention will promote improved dietary regimes for pregnant and lactating women, as well as improved feeding practices for young children, emphasizing Vitamin A-rich foods in most communications.

III. BACKGROUND

A. Overview

At the request of the United States Agency for International Development (USAID)/Bamako, Claudia Fishman, Deputy Director for the Nutrition Communication Project (NCP) at the Academy for Educational Development and AED consultant, Dr. Katherine Dettwyler, (Department of Anthropology, Texas A & M University), implemented a Vitamin A Communications Field Research activity in the Macina circle of Ségou, Mali March 5 - 22, 1990. Dr. Fishman supervised the activity, while Dr. Dettwyler provided the primary technical input and was present throughout its duration. Mme. Dandara Kanté, a nutritionist working for the Ministry of Education (DNEF), facilitated all training activities and provided translations, as needed, for the American consultants.

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Following refinement and pretesting of all questionnaires, the team conducted two market surveys and 16 focus group interviews during the time allotted. The team prepared detailed summaries of their findings and drafted a preliminary multi-audience communications strategy for improving general nutritional status, and increasing consumption of Vitamin A rich foods.

B. Objectives

1. Subject Matter: Maternal and Infant Nutrition/Vitamin A

The first objective was to collect detailed information on food availability and perceived costs, parental and community attitudes towards child care and feeding, and people's reactions to prototype messages about food and nutrition. The findings will guide development of a communications campaign to promote increased consumption of Vitamin-A rich foods in Macina and other regions of the country sharing its ecological and sociocultural profile. In addition, the findings (combined with others) will guide production of staff training materials in general infant and maternal nutrition.

2. Process: Village Mobilization

The Macina Child Health Project has been lauded for its effective use of graduates from the nursing and midwifery divisions of the National Public Health School as village health monitors, women who otherwise would be underemployed due to government job shortages. Recent evaluations indicate that CARE activities are successful. Health monitors are recognized as authority figures in their villages, immunization and oral rehydration coverage goals are being achieved, growth monitoring has been initiated, and villages are forming volunteer committees to ensure the "sustainability" of the health interventions promoted by CARE.

Hence, the second objective of the study was to have the research group make a collective (informed, though subjective) assessment of the differences in nutrition-related attitudes and behavior between "successful" and "not successful" villages participating in CARE's project; and in turn, to compare participating villages to non-participating villages in the region. In making these comparisons, we hoped to learn:

- what factors seemed linked to the success of the labor-intensive model offered by CARE (and other PVOs);
- what additional training was required by "monitrices" to do effective nutrition education/mobilization at the village level;

- what educational and interpersonal communication materials would enhance this approach;
- and what elements could be effectively handled by "mass media," or less intense interpersonal contact, (if the labor-intensive model could not be sustained).

3. Training

Out third objective was to train CARE monitrices, as well as government health agents (from the national, regional and circle level) in nutrition market survey, focus group, and nutrition education planning techniques.

C. The Research Site: MACINA

Macina is an administrative circle of Ségou with a population of 140,000 people (predominantly Bamabara and Bozo) located in 247 villages located along the Niger river, and in-land.



Macina Child Health Project

The Macina Child Health Project (MCHP) is implemented collaboratively by CARE and the MSP, with partial funding from A.I.D.. CARE employs recent graduates of Mali's nursing and midwifery schools as health monitors (*monitrices*). The monitrices provide vaccinations (PEV) with goals to fully immunize 80% of all 0-6 year-olds and 90% of pregnant women in the Circle. In 65 villages of Macina Central and Sarro, the monitrices also conduct intensive activities in the following interventions: Village hygiene (*salubrité*); Water hygiene (*hygiene de l'eau*); Latrines; Oral Rehydration (RVO); Nutrition; Aseptic Delivery Techniques (*hygiene grossesse accouchement*); and formation of a village health committee (*Comité de Santé*).

Gardening and Wells

Other CARE projects in Macina are the Agricultural Development in Drought Zones Project (DAZA) focusing on gardening and village-level agro-forestry, and a water and sanitation project that builds wide diameter cement wells for drinking water and improved earthen wells for gardening and other purposes.

The DAZA project has introduced cold season vegetable planting of tomatoes, cabbage, carrots and sweet potatoes, and hot season cultivation of okra, cabbage, Japanese eggplant and melon. While numbers of persons participating in the project have remained relatively stable (661 villagers last year, 642 this year), the proportion of women participating has increased, as 70% of DAZA gardeners are currently women, compared to 56% the year before.

DAZA agents lead food preservation (for example, sun drying) and culinary demonstrations to promote home consumption of vegetables. However, agents report that at least 60-70% of the produce goes to market. One goal of NCP will be to help the Health Project and DAZA integrate messages and activities.

D. CARE Classifications and Ratings

CARE uses the following classifications for villages according to their engagement in project activities:

"Virgin"	No CARE programs
Well/Garden	Villages participating in Well and/or Garden projects, but no Health project
In training <i>en formation</i>	Health monitrice has been working in the village for at least several months, but village is not yet ready to move into "stabilization" phase, as measured by Scale I below. The monitrice visits the village once/week. 45 villages are currently designated as "en formation".
In Stabilization <i>en stabilisation</i>	Health monitrice has been working in the village for over one year. Villagers are sensitized, cooperative and are achieving objectives on Scale II below. The monitrice visits the village once every two weeks. 20 villages are currently "en stabilisation."
Sustained	Ultimate goal achieved of self-sufficient village in which CARE will gradually pull out and villagers will continue activities begun by CARE. CARE will initiate the process this year.

CARE Monitrices evaluate their villages monthly according to rating scales [See below] for achieving program objectives. Goals and activities are prepared for each village according to the Monitrice's rating.

Below are the rating scales used for Villages "en formation" and "en stabilisation," as well as a sample monitrice's village monthly goal/activity sheet.

ÉVALUATION MENSUELLE
(Villages en Formation)

Village :

Date :

ACTIVITÉS	Objectifs à faire par activités				
	1	2	3	4	5
SALUBRITÉ	Rien n'est	Salubrité se fait début de comité de salubrité avec la monitrice	début de comité de salubrité	Comité de salubrité fonctionne mais pas régulièrement.	Comité de salubrité fonctionne régulièrement salubrité complète
P. S. V.	Pas de connaissance NO SHOW	début de connaissance	Connaissance suffisante	Bonne participation	Responsable lettre début de mise place des cahiers de naissance
HYGIÈNE DE L'EAU	Rien n'a commencé	Puits entretenus non traité filtrage de l'eau fait	Puits traité irrégulièrement mais l'entretien linge propre	Puits traité régulièrement linge propre	Puits traité linge propre sous contrôle du comité de puits
NUTRITION	Pas de connaissance	-	Quelques connaissances	-	Messages bien perçus et début d'application des techniques nutritionnelles
LATRINES	Très peu de latrines	-	Latrines mais mal entretenues	-	Latrines dans la majorité des concessions et bien entretenues
R.V.O.	S.S.S peu connue	-	S.S.S assez connue	-	70% des femmes peuvent préparer la RVO et disent l'utiliser
H.G.A.	Méthode traditionnelle	-	Quelques connaissances	début d'application des méthodes d'H.G.A.	70% de femmes appliquent les méthodes d'H.G.A.

SECTION GÉNÉRALE
(Habits en stabilisation)

DATE :

ACTIVITÉS	Objectifs à faire par activités				
	1	2	3	4	5
SALUBRITÉ	Niveau inférieur au niveau 5 "Formation"	idem niveau 5 "Formation"	Journées de salubrité sous autorité des responsables du quartier	Comité de salubrité fonctionne seul de façon régulière	Liaison avec le Centre de Santé
P.F.V.	" "	Responsable lettré dispo- nible	Responsable lettré début de mise en place des cahiers de naissance	Responsable lettré fait le suivi des naissances, fait régulièrement la sen- sibilisation P.F.V et oriente les nouveaux nés au Centre fixe	Secteur de base
HYGIÈNE DE L'EAU	" "	Puits traité, linge propre sous contrôle du co- mité de santé	-	Comité existant et autonome	Traitement de jarre à domicile
LATRINES	" "	idem niveau 5 "Formation"	-	Supervision de latrines par le comité de santé	
R.V.O.	" "	" "	" "	80% des femmes connaissant ce la S.S.S. (Équipe R.V.O.+Nutrition)	
NUTRITION	" "	" "	Connaissance appro- fondie en nutrition	Équipe de Nutrition +RVO	
HYGIÈNE - GROSSÈSSE ACCOUCHEMENT	" "	" "	Comité fonctionne avec la monitrice	Comité fonctionne seul	A.T.R. - H.S
COMITÉ DE SANTÉ	" "	Personnes dispo- nibles ne fonctionnent pas en comité	Personnes désignées début de fonctionne- ment en comité	Comité fonctionne début de système de financement	Comité autonome

Atlixen

SEMAINE		PROGRAMME MENSUEL D'ACTIVITES PAR VILLAGE					Mois: 1/2/2003
VILLAGE	1	2	3	4	5	OBJECTIFS DU MOIS	
T	5 Démonstration nutritionnelle Après midi		19 Causerie sur les 6 milles cibles du PEV Après midi			Préparation du Comité à son autonomie	
A	9 Démonstration nutritionnelle + Sensibilisation PEV	13 PEV	24 Causerie sur le danger des ordures	27 Démonstration RVO		Amener les femmes à connaître les notions sur des activités ci après notées.	
W	7 Causerie sur les 39 pes d'activités + Démonstration	14 Démonstration RVO: Animation ce sera l'œuvre de Demichela à l'Orlan Kalapo	21 Causerie sur les 6 milles cibles	28 Causerie sur le serrage brusque.		Amener les femmes à connaître les notions de nutrition	
D	8 Réunion avec les membres du Comité.		22 Démonstration nutritionnelle		29 Démonstration nutritionnelle à Kinkimiri Weri.	Préparation du Comité à son autonomie.	
K	6 Démonstration nutritionnelle + démonstration RVO		23 Causerie sur les 6 milles cibles du PEV	30 Causerie sur le danger des ordures.	16 Démonstration nutritionnelle à Souleage	Essayer de mettre en place un Comité de Santé	
D	10 Causerie sur l'hygiène de la grossesse	12 Démonstration nutritionnelle	24 Causerie sur l'hygiène de la grossesse Réunion avec les membres du Comité	31 Rédaction des rapports mensuels	17 Démonstration nutritionnelle à Souleage	Préparer le comité pour son bon fonctionnement.	

9/2

IV. RESEARCH SITES, METHODS AND SCHEDULE

A. Village Research Sites

The villages were selected collaboratively by CARE/Macina personnel, the circle Medecin Chef and the research team. Villages that participated in the preliminary research in December (Bambara villages of Selle, Berta and Zambala and Bozo villages of Touara, Selleye and Konkankourou) were excluded from the current study.

The following villages were selected:

Macina Central Arrondissement

- | | |
|-------------------------------|---|
| Ke-Macina | Site of the huge weekly market for the <u>cercle</u> |
| Ke-Bozo | Bozo fishing village located directly across the Niger River from Ke-Macina, "in formation," and not making much progress, according to recent monitrice ratings. |
| Dioumediela
[Dioumandiela] | A successful Bambara village, "in stabilization," the next village after Ke-Bozo across the river from Ke-Macina. |

Saaro [Saro] Arrondissement

- | | |
|---------------------------|---|
| Folomana | A successful Bambara village, "in stabilization." |
| Bangou-Marka | Actually two villages, part Bambara and part Marka, which do not get along with each other. Monitrices rate the village as average to poor in terms of its achievement of "formation" objectives. |
| Niga | A Bambara village "in stabilization". Site of an inter-village reunion (involving six villages) to discuss CARE's pull-out and sustainability |
| Koungodian
[Koungodia] | A Bambara village "In formation," and making good progress. |

Saye [Sai] Arrondissement

Konkambougou [Konganbougou]	"Virgin" village (no CARE project contact)
Tiontie [Tiondie]	"Virgin" village. Site of weekly Friday market for this region.
Wella	"Virgin" village. Very poor economically.
Koui [Kouima]	Bozo/Bamabara village, with a CARE Well and DAZA project (garden project reported to not be very successful). No health project.

Monimpe Arrondissement

Tougouma	A small, "typical Sahelian" village, mostly Bambara, near Monimpebougou, no contact with CARE officials.
Tangana	According to the Circle's Head Physician, the "worst" village for malnutrition in Monimpe, no contact with CARE officials recently, though they had two traditional wells dug by CARE some years ago.

B. Methods

1. Prior Research

Dr. Katherine Dettwyler has published widely on infant feeding and nutrition in Mali, based on her ethnographic research conducted between 1981 - 1983.¹ Between June - December, 1989, she returned to implement a follow-up study of the community that participated in her original research, and to assist with several child survival efforts (partially supported by A.I.D.), including the Nutrition Communication Project. In December, 1989, Dr. Dettwyler conducted feeding in six villages participating in the Macina Child Health Program in the Region of Ségou. Based on

¹With funding from USAID/Mali, NCP translated Dr. Dettwyler's articles originally published in Social Science and Medicine into French. They are available through USAID/Mali or AED.

this preliminary assessment², which revealed considerable night blindness among pregnant women and young children, Dr. Dettwyler helped design the current study. Her summary of findings from December and revised questionnaires, together with her previous research articles, became the basis for the March Research Guide³ prepared by NCP, which also contained training materials on focus group interviewing and nutrition reference tables.

2. Description of Study Methods and Tools [See Appendix C]

a. Food availability and use questionnaire

This questionnaire, written in French and phonetic Bambara (only one team member could read alphabetized Bambara), asked about the seasonal availability, source, cost, and usages of Vitamin A-rich foods known to the region, as well as food taboos associated with their consumption by young children and pregnant women. Each team member was assigned 3 or 4 foods (including one known to be in-season and one known to be out-of-season) from a list drawn up by the team. Interviews were usually conducted with only one or two people at a time.

The foods included were: liver, fish, fish oil, eggs, fresh milk, butter (ghee), karite butter, carrots, tomatoes, fresh okra, sweet potatoes, squash, mangoes, Ronier palm fruit, sweet potato leaves, black-eyed pea leaves, squash leaves, onion tops, manioc leaves, and locust bean powder.

b. Market survey

As above, for each of their assigned foods, each team member walked through the market (once in Tiontie and once in Macina) and noted how common that particular food was, how many vendors there were, whether it was sold raw or cooked, etc. Vendors were asked where they got their supplies, what season of the year they sold this food, what quantities people usually bought, and for what price, and who usually bought the food (adults, children, men, women, etc.). As people purchased food, the price, quantity, and demographic characteristics were noted.

²Dr. Dettwyler's Assessment Report, which contains the Macina market study for December, is available as a separate document from AED, CARE/Mali or USAID/Mali.

c. Focus group interviews

Normally 6-8 persons participate in focus groups, which are structured discussions led by a moderator who follows a topical outline. They are designed to allow free discussion among group participants so that differences of opinion as well as consensus are revealed.

The team was given a brief overview of moderator's techniques, but essentially needed to learn "on the job," how to best manage group dynamics in the Malian village setting. The topical guideline, which can be found in Appendix C, stressed attitudes, opinions and "traditional wisdom," rather than "knowledge" concerning children's and women's diets. This was elaborated by the research team, which also discussed the nuances of the Bambara translation. Rather than following classic recruiting procedures, team members interviewed "natural" or "casually-formed groups" of women and men as they encountered them in the village. The groups usually consisted of 5-6 people, and one team member led the group, while one or two others took notes (in two of the women's groups, team members preferred collective discussion over a single moderator.) The focus groups took between one and two hours to complete.

d. Informal observations and small group interviews

Dettwyler and her research assistant, M. Diarra, sometimes accompanied by Mariam Famanta Traoré, walked around each village, noting types and degrees of malnutrition in the young children, and stopping to talk to small groups of women [and occasionally men] as they worked. The modified questionnaires concerning general infant feeding practices and knowledge of night blindness served as the basis for these interviews. When Mariam accompanied Dettwyler, she was given guidance in the visual assessment of malnutrition, how to question the mother about the child's dietary habits and health history, and how to counsel the mother. This informal guidance served as the basis for the training module subsequently developed for the project.

e. Anthropometric Measurements and Kwashiorkor screenings

During the Nov/Dec 1989 survey, children in Selleye and Konkonkourou, had their arm circumferences measured and they were screened for kwashiorkor. During the March 1990 survey, children were observed for clinical signs of marasmus (PEM) and kwashiorkor, but arm circumferences were not measured. These brief surveys were intended to provide only a general indication of the level of malnutrition in the region.

Generally speaking, between the ages of 6 months and 5 years, healthy children will have arm circumferences between 15 and 16 cm. Anyone with an arm circumference below 14 cm is probably malnourished. Circumferences less than 12 cm indicate severe malnutrition. Kwashiorkor was diagnosed on the basis of physical and behavioral symptoms (refer to the *NCP Field Guide for Identifying Children with Malnutrition* for details).

In Selleye, we measured 27 children. Nine children (33%) had arm circumferences less than 14 cm. All of these children were less than 2 1/2 years old. None of the children under 3 had arm circumferences in the normal range (above 15 cm). Three of the children had arm circumferences less than 12 cm. Their ages were 4 months, 7 months, and 11 months. No children with kwashiorkor were identified in Selleye.

In Konkankourou, we measured 44 children. Eleven children (25%) had arm circumferences less than 14 cm. None of the children under 3 years of age had arm circumferences in the normal range (above 15 cm). Only one child, 22 months of age, had an arm circumference less than 12 cm. However, 5 children were identified as having kwashiorkor. One child, at 22 months old, was still breastfeeding. Two of the children were 26 months old, and both had been weaned at 24 months. Two older children, one approximately 6 years old, the other at least 12, also had kwashiorkor. Both of the older children had been taken to see a doctor in Selingue, who prescribed salt-free diets. The 12 year old had an especially severe case.

During the March 1990 survey, children with kwashiorkor were identified in Ké Bozo, and Kouï. Children with severe PEM were seen in Folomana, Konkambougou, Kouï, Wella, Kené, and Tangana (Monimpe Arrondissement). Wella, Kené, and Tangana seemed to have the most serious levels of malnutrition. Almost every child seen in Wella was moderately to severely malnourished. There were many malnourished children in Kené the day of the inter-village reunion, including several who were stunted (much too short for their age), but they might have come from the other villages which were participating in the reunion.

In Tangana, many children were malnourished, including a number with goiters (iodine deficiency) and several who were very stunted. Tangana has a reputation on its side of the river as having a serious problem with malnutrition.

We cannot draw firm conclusions from these data, except to say that malnutrition among young children clearly is a problem in these communities, even though there were only a few children who were severely malnourished in some of the villages. Although kwashiorkor is not common, it is still important for women to have information about how to treat this condition when they do see it. This is especially critical if the nutrition communication project hopes to have lasting, widespread effects. People move in and out of these communities, and will carry the information they have learned to non-project villages. Likewise, when women move into project communities with children suffering from kwashiorkor or night blindness, the project villagers will know what to do to treat these conditions.

C. Schedule

March 5 Travel

**Meetings in Segou:
Dr. Diakite, Regional Director, MSPAS
Dr. Soumounou, Medecin Chef, Macina
Marco Vigamo, JNSP (PCAN)**

March 6 Macina

- 1. Meeting with the Circle Commandant**
- 2. Orientation and Training**

The team discussed the research objectives, and the various interview forms to be used in the research, and formulated a calendar to accomplish the work within the available time. Dettwyler and Fishman decided it was best to begin with the more structured activities (market surveys and food availability and use interviews) and master those techniques before proceeding with focus group interviewing, which requires a more open and flexible interview style.

March 7 Macina

- 1. Orientation meeting with Dr. Soumounou, the Head Physician of the MSP Health Center in Macina. Selection of villages not participating in CARE/MSP Macina Child Health Project for research sites.**
- 2. Selection of research site villages in "CARE project" areas.**
- 3. Revision of the market survey questionnaire. Testing of the questionnaire in the daily Macina market, practice interviewing using food availability questionnaire.**

March 8 Team goes to Bangou-Marka, conducts food availability and use survey, observes preparations for DAZA's annual cooking demonstration [accompanied by Tabara, the CARE monitrice]

**March 9 Team goes to Konkambougou, conducts food availability and use survey; Dettwyler conducts individual interviews
Market survey at weekly market in Tiontie [accompanied by Amadou Dolo, assistant to the infirmier at Saye]**

- March 10 Revising of Focus Group Questionnaire written by Fishman, input from Dr. Soumounou
Market survey at weekly market in Macina
- March 11 Final revision of Focus Group Questionnaire, production of questionnaire.
- March 12 Cissé and Diallo go to Niga to observe intervillage reunion and conduct men's focus group [accompanied by Dr. Soumounou and Jean Kone]; rest of team goes to Dioumediela and conducts women's focus groups (Dettwyler observes focus group techniques) [accompanied by Adam, the CARE monitrice]
- March 13 Team goes to Folomana, conducts men's and women's focus groups. Dettwyler and Famanta do informal observations and small group interviews. Famanta trained in visual evaluation of children's nutritional status [accompanied by Fatou, the CARE monitrice.]
- March 14 Team goes to Ke-Bozo, conducts men's and women's focus groups. Dettwyler and Diarra do informal observations and small group interviews. Famanta trained in visual evaluation of kwashiorkor, counseling of mothers [accompanied by Dr. Soumounou.]
- March 15 Team goes to Wella, conducts men's and women's focus groups. Dettwyler, Diarra and Famanta do informal observations and small group interviews [accompanied by Amadou Dolo.]
- March 16 Team goes to Kouï, conducts men's and women's focus groups. Dettwyler, Diarra and Famanta do informal observations. Famanta and Diallo conduct sugar-salt solution demonstration; also do kwashiorkor counseling [accompanied by Amadou Dolo.]
- Team goes to Tiontie again for weekly market, market survey. Dettwyler purchases Vitamin A capsules in market
- March 17 Dettwyler, Diarra and Cissé go to Koungodian (accompanied by Jean Kone), Cissé and Kone conduct men's focus group, Dettwyler and Diarra do informal observations and small group interviews; rest of team take the day off.
- March 18 Team writes focus group summaries; Dettwyler and Diarra take day off.
- March 19 Team writes focus group summaries, Dettwyler works on notes.
- March 20 Team writes focus group summaries; Dettwyler, Fishman, and Diarra attend intervillage reunion in Kené; Fishman attends "young men's meeting," Dettwyler and Diarra attend "women's meeting."

- March 21** Team develops draft communications strategy: target audiences, themes, messages, and media. Team prepares mission report in French. Dettwyler and Diarra go to two villages in Monimpe Arrondissement, conduct informal observations and small group interviews [accompanied to second village by Issa Kayo, the "hygienist"]
- March 22** Travel to Bamako
- March 23** Dettwyler and Macalou conduct debriefing with CARE officials.
- March 26** Fishman, Macalou and Kanté conduct debriefing with M. Semega, Nutrition Section.

V. FOCUS GROUP FINDINGS

A. Life in the village and how it has changed

Most people stay in the village where they are born. Some villages are "older than Macina." For example, Wella is said to be 556 years old. Most of the villages have grown, but most people neither notice this nor consider it a problem.

The most commonly mentioned negative changes were those associated with the drought of 1974/75. Since the drought, most of the lakes have dried up completely, and there are fewer fish in the river. People have had to turn to farming and gardening to support themselves. Especially for the Bozo and villages farther to the east (away from the river) this has been a great hardship as most of the subsistence activities previously centered around catching, processing, and selling fish. People claim they do not have the strength to work as they used to, because they no longer have fish to eat. They have also noticed an increase in night blindness, which the fishing villagers attribute to a lack of fish (which must be interpreted as a lack of food in general). They are particularly concerned that their children are not growing up in the same culture as their parents.

As one Bozo woman explained,

"We have children who have never seen a fish. The first time my child saw a fish in the water, he thought it was a mouse. That day I cried."

Because of the perceived lack of livelihood, young adults, particularly unmarried males, go either to the bigger towns of Mali, or to other West African countries (especially Côte d'Ivoire) to find work. Some return during the harvest to help, while others stay away for several years at a time, but send money back to their families. A number of Bozo migrate to the dam at Selingue to fish for part of the year.

The proportion of "female headed households" as a result of this rural exodus is growing. Women generally practice low resource farming, small animal husbandry, informal sector trade and gardening (which is said to be limited to older women).⁴ Women's income generation activities included karite oil processing, ronier palm processing, fish drying and smoking and charcoal making. Many women claim that they have been deprived of their goods by the *Service des Eaux et Forêts*, which they consider unfair as they claim to use gathered dry wood, not freshly cut trees.

On the positive side, people living in villages with active health committees (formed by CARE) commented on the cleanliness and nice atmosphere of the village since they have instituted their village hygiene programs.

In one village it was mentioned that the practice of female excision is still strong, however:

⁴Though, it is interesting to note that the proportion of women participating in the CARE gardening project (DAZA) has grown substantially during the past year (from 50 to 76% female.)

"in the past this was done by the 'blacksmith society', but now it is done at the health centers where there are fewer risks. We notice that women who have been excised are less fertile."

They say that the villages are nicer places to live, and that the children are sick less often. The primary attraction of village life remains marriage, as the women say, "when there is an understanding," and agriculture for the men.

Education

Apart from Koranic schools (which are found in most villages), primary or secondary schools exist only at the arrondissement level (one in Sarro and one in Saye). Few children attend school. In one village no one has gone in ten years (though there were six former students). The principal reasons are that children must be sent to another town, meaning that parents have to pay for room and board (they send millet for their meals), and lose their help with domestic and agricultural labor. The boarding conditions are considered difficult (separation from parents, insufficient food and comfort, general lack of care). Parents bribe the administration in order to prevent registration of children. More often this involves girls because parents think they are less tolerant of the boarding conditions. Moreover, women say that a girl's best place is at home where she helps her mother with the household tasks. Another reason is the fear that an educated girl will refuse the fiancé who has been chosen for her. Thus the attendance rate for boys is twice that of girls. They generally go for four years.

Literacy

There are very few literacy centers still functioning. The few centers that had existed in the past have closed due to the inability of the villages to support the fees (including gasoline) for the trainers or fuel for the generators or lamps to work at night. Those in operation are attended solely by men, or sometimes by children. Many villagers say they would like to see the literacy centers opened again, but have not considered how this would be financed. In one village, the women said:

"Nothing is done to educate women. We would like to be able to read."

B. Responsibilities of boys and girls

To begin, most participants described childhood as extending well into the teenage years. Many women had the impression that they lept from childhood into motherhood, with no transitional period (this is described in greater detail below).

Young children help their parents with all of the agricultural, pastoral, and domestic tasks, as they are able. Adults claim that children today do less than they did as children, partially because they are more "tempted by leaving the village for larger towns," and partially because the labor has changed (for example, horses were more plentiful and required young men's attention in the past.)

Some women noted:

"When we were girls, we had our little commerce of 're-selling' condiments in small quantities, such as onions, karité butter, chickens, etc. Now young women lend themselves more to commercial activities, such as selling millet and rice and husking rice with the pestle."

"Girls used to do everything, including spin cotton and gather wood with their mothers. Now they only pound millet and do the cooking."

Division of labor by sex follows adult patterns:

Girls haul water, collect firewood, pound millet, clean the compound, help with the herding, and work in the fields. In villages where the ronier palm is important, they help collect the palms.

Boys herd small animals (goats, sheep) and help their fathers with agricultural tasks, primarily with plowing. In the fishing villages, the boys help with all the fishing activities.

In one village, it was noted that children are starting to work in the fields at a younger age than previously.

Interestingly, none of the women mentioned that the young girls help take care of the younger children, even though this was observed to be a major part of young girls' activities every day. It may be that "child care" is not viewed as a separate activity, or as "work", but is just incorporated into whatever other work the girl is doing.

Marriages

Fathers of the prospective bride and groom arrange marriages for their children, normally when the girl is 6-8 years old and the boy is 18-20. Some men selected their own wives because their fathers were dead. Some participants mentioned consulting a marabout to make sure that the marriage was "promising." Negotiations were cancelled on his say so. In virtually all cases, the mothers and the "interested parties" were "simply informed of the arrangements and expected to accept them."

An "old notable" explained changes in the process as follows:

"It used to be that the boys were circumcised late in life between the ages of 18-20 years old and immediately after the fathers would look for a woman, sometimes even a baby, and proceed with the engagement. And then for every year after that they would give millet to the girl until the marriage day. But now the father still finds the woman for the man, but they wait until the girl is big, because instead of giving millet they have to give money. They boys are circumcised very young now."

Forced marriages (when the bride really objects to the groom) still exist, and are a source of anguish for the women. Men are usually 5-10 years older than their wives; women marry in their mid-teens, and men in their mid-20s. A woman says she gets a lot of satisfaction from marriage if she gets along with her husband.

C. General feelings towards having and raising children

1) **Recalling feelings about the wife's first pregnancy**

Men's responses

In general, a man's first response to news of his impending fatherhood is:

"Joy."

"Worries about the future for the child"

"Worries about food, clothing and medicine"

"The knowledge that you will have to work harder to support a family. You will have to "act like an adult" and be concerned about the financial responsibilities."

The men said there has been a change towards more of a nuclear family social organization, with each man responsible for his own family, and not able to count as much on his extended relatives as in the past. One mentioned that you begin to "prepare yourself all during the engagement

little-by-little," with the implication being material and financial preparation, not psychological preparation.

In Wella, which has no CARE contact, men said they worry about the child's survival, and how long it will live. In Kouï, which has CARE wells and DAZA, but no CARE health project, the men said:

"What makes us worry is the survival of children, their food. A be Allah bolo" (It's in God's hands).

"People often say Denmisenni dumuni, a be Allah bolo. (Children's food, it's in God's hands)."

The implication is that getting food for children is something you worry about, but in the end, it is up to God to provide.

Only a few men said the news made them happy. The news was met with the realization that they were taking on added burdens. For the most part they sought out their elders for advice, or prepared themselves through "observation." The kinds of advice they received include:

"Don't hit a pregnant woman;"

"Don't let her do too much hard work or carry heavy things;"
"Educate the child as you, yourself, were educated."

Women's responses

Many women laughed in response to this question, as though they really had no choice in becoming pregnant, so how were they supposed to feel? However, women expressed definite opinions according to their age and circumstances of their marriage.

If women were newly married, they were almost always unhappy to find out that they were pregnant; women want two years of being a "young wife" before becoming a mother. And if they had been dragged into a marriage to someone they did not like, they did not want to have children at all.

On the other hand, if a woman had been married a long time without becoming pregnant, then she was very happy to be pregnant. Five years without a pregnancy at the beginning of a marriage was too long. Only women who had been married a long time without getting pregnant said that they were very happy to find out they were pregnant.

Only one woman expressed concerns about the dangers of delivery. In general, the responsibilities of becoming a mother, pregnancy and delivery are considered normal parts of adulthood.

However, none of the women said that they looked forward to being a mother, or were excited about the thought of a baby. The women who had not become pregnant right away were mostly "relieved" because an infertile woman is viewed with suspicion in this society, and does not have a normal adult role.

A women always tells her husband that she is pregnant first; not to share the good news with him, but so that they would know that he was the father. Women expressed concern that if they did not tell the husband immediately, and then he left on a trip and returned to find her pregnant, he would suspect her of infidelity. After their husbands, they then told their own mothers. They rarely told their mothers-in-law, with the implication that they rarely got along with them.

Some women asked their husband for advice; some asked older women, including the traditional midwife. The advice they have received includes:

"Don't eat salt."

"Be careful with your sleeping position."

"Don't sit on an overturned mortar."

"Don't sleep outside when there is moonlight." (doing so exposes you to evil spirits - which are thought to be the cause of most birth defects)

"Do not climb trees (such as during ronier palm gathering) or climb on the roof of the house."

"Avoid dangerous work such as cutting wood" (this is not physically dangerous, but "spiritually" dangerous, the baby might be born with kungolo chi.)

"Avoid spicy or heavy foods, like toh."

2) Cost of supporting a family

All villagers thought the cost of living and raising a family was expensive, requiring much more work than they remembered in the past:

"We really have a lot of trouble nowadays. The cares we have in order to make ends meet obliges us to really work harder, and it's harder to organize the work, too."

Men's responses

In most villages, a man's principal responsibility to the household economy is to provide the staple cereal grain(s) - millet, rice, corn, etc. He should also pay for clothing, medicine, soap, and taxes. The wife should provide other things - mainly the sauce ingredients.

As it was explained in one village:

"Men and women participate equally, more or less, in taking care of the family. Men cultivate and bring the cereal grain and the women take care of the household and (sometimes) help the husbands in the fields. After the harvest the men give a quantity of the millet to their wives for their small needs. And in the same manner women have the authority to independently sell small animals. So essentially, women take care of the goats, sheep and chickens, and that's their money to spend."

In another village, it was elaborated that the portion of the harvest goes to the "oldest wife, who manages the condiments."

Traditions vary from village to village. In some, the men provide some of the sauce ingredients, or at least money to pay for them. In general, the men say that if the man cannot provide for the family, then the woman should help, from her own sources of income. No one said that a man would supply the woman's part if she was unable.

The men complained that there is a lack of a ka quèlè, (mutual support) now:

"Families are dislocated, and the kids who have left the village are also a financial burden."

They remembered conditions being better before the drought because they had more food. They implied that "in the good old days" men could provide everything for their families, and they are embarrassed now because they have to ask their wives for help. They say they do not like to ask the women to work in the fields (because it would indicate failure on their part to provide). However, others admit that the women sow the seeds and gather the stalks up after the harvest.

Women's responses

There was more variation among the woman in response to this question. In some villages, the man provides the cereal and the condiments, or money for the condiments. In others, he just provides the cereal. In some, the women are in charge of the clothing for the family, while in others, clothing and medicines are the responsibility of the men alone. Everyone said it was difficult to provide all the things a family needed.

In general, women do not cultivate the fields. They gather and sell firewood, or make and sell baskets, or buy food in quantity and resell it to raise the money they need for condiments. Some

of them are in charge of goats and sheep which they can sell for money. Of course, they "pound millet into flour and make dinner."

In KéBozo (a "fishing village"), the women said:

"Usually the woman's role is limited to domestic tasks and to commerce. But if the husband has financial difficulties, the woman can provide the cereal and the condiments. You must be aware that in KéBozo, the men are doing the best they can (given the circumstances of fewer fish)."

3) Special needs of pregnant women

Men's responses

Most men agreed that pregnant women had special needs and deserved special treatment. The main example was that a pregnant woman should not do heavy labor, carry heavy loads, or walk long distances. In some cases, a husband helps with the traditional women's chores when she is pregnant; gathering firewood or drawing water. Or if he has money, he hires another woman to do these tasks, or finds a relative to help her.

Husbands are also responsible for taking women to the health center for check-ups during pregnancy, and for buying any medicine that she needs. Specific advice included not hitting a woman when she is pregnant (it is apparently not considered unusual to hit her if she is not pregnant), and not letting her climb trees.

Only a few men mentioned that pregnant women should eat good food.

Women's responses

In contrast to the men's near unanimous agreement that pregnant women needed and deserved special treatment, the women said that for the most part they did not get any special food, treatment, or consideration because they were pregnant.

Most claimed that a husband's assistance was negligible - he might occasionally go collect firewood, or draw water, or excuse her from work in the fields, or pay to have the millet pounded. He might agree to pay for medicine that she needs, but this is also rare. Men pay for the medical expenses of the birth itself, but this is part of their normal responsibility. The women pointed out that men were quick to say that pregnant women needed special treatment, but few actually provided it.

For themselves, pregnant women buy grilled meat and grilled chicken in the market, which they consume on the spot, as there is not enough to go around at home.

4) **Problems and symptoms of pregnant women, prevention of night blindness**

Men's responses

Men recognized that pregnant women suffered from a number of symptoms, including stomach aches, head aches, nausea, vomiting, tiredness, swollen feet and night blindness. These are considered normal aspects of pregnancy, and there is nothing that can be done to prevent or treat them. In general, if there is a problem they take their wives to the medical center for treatment or advice.

In some of the CARE health villages, the men said that if a woman had night blindness she could eat carrots, liver, or fresh fish, take Vitamin A capsules, or go to the health center. In one village, they treat night blindness and jaundice with an infusion of papaya leaves.

In general, the men say pregnant women should not eat a lot of oil or salt. In Wella and Kouli (no CARE health project), people mentioned Vitamin A capsules for night blindness, but said they do not give them to pregnant women.

One older man, a traditional healer, said:

"We don't give medicine to a pregnant woman because it might cause problems."

He also said,

"I would refuse to give medicine to someone who does not have the disease." (This was said in reference to giving liver for night blindness.)

The most prevalent attitude was one of "if it isn't broken, don't fix it." Similarly, in Wella, people said:

"There is no prevention. We look for medicines when she says she's got a problem."

Thus, if a woman does not complain about her symptoms, nothing is done for her.

Women's responses

Women also mentioned all the usual symptoms of pregnancy, including night blindness along with nausea, vomiting, tiredness, stomach aches, etc. The amount of night blindness reported varied from village to village, but in all of the villages, women know that it can be cured with Vitamin A capsules. In the Bambara villages, people also use goat liver for night blindness, and in the Bozo villages, they use snake fish. One village said that the water from the bottom of pirogue can be used to wash your face if you have night blindness.

In Wella, women said:

"We don't do anything to avoid these problems because they pass with the delivery."

This expresses a general attitude that night blindness is like other symptoms of pregnancy, which ends when the baby is born, and therefore requires no treatment or prevention.

5) **Can a wife ask her husband for more or better food during pregnancy?**

In general, everyone treated this question along the lines of "Sure, she can ask. And if he has the means, he'll try to comply with her wishes." But it was clear that few people thought they had the extra means to do anything about what was considered a relatively unimportant expense.

Men's responses

In general, men said that a woman could ask her husband to buy her extra food or medicine when she was pregnant. They all said it was all right for her to ask, and that they would buy it for her if they could afford it.

"If the wife is ashamed to ask him, she can ask her in-laws for this. It sometimes happens that a husband has to refuse his wife's request."

Another suggested,

"If she doesn't say anything, the old people (meaning his parents) can tell the husband, and sometimes he decides for himself that she needs it. This man is called a "furukelan" (a husband who is happy to be married and who takes care of his wife).

In one village, the men said that the wife should only ask the husband if she couldn't afford to buy it for herself.

Women's responses

In contrast, most of the women said that they could not ask their husbands to buy them any special food when they were pregnant - either because pregnant women eat just like everyone else, or because it is not his responsibility.

Either women are afraid to ask their husbands for money for extra food when they are pregnant, or they know from experience that the men will say they can't afford it.

In one village, the women said that if a pregnant woman wants to avoid night blindness, she can ask her husband to buy her food and medicine. But if the husband will not take this responsibility, it is the woman herself that must assume it.

6) What is a good father/mother?

An interesting response, given the unanimous attitude that it was difficult to make ends meet even in the nuclear family, was that a "good father or mother takes care of not only of his/her own children, but also other children." The proverb for this is "the chicken covers not only her own eggs but also those of others."

Men's responses

Men's responses to this question were fairly uniform. A good father is someone who takes care of his children's needs; provides them with food, medicine, clothing and soap; makes sure that they are clean; and takes care of them while his wife works. A good father also teaches his children how to work, and is interested in his wife when she is pregnant, and in the children once they are born.

In addition to financial responsibilities, some of the men also mentioned the social aspects of fatherhood:

"Koromusotigi ta yé bana kuncè madenya" (The one who has a big sister can eat the fruit that's found at the top of the fig tree.)

"We say, 'Karsa kéra mogo yé,' (he has really become a person.)

"He takes care of them, he gives them presents and he indicates the work to be done."

"Son fa ye kuma don, a be mago do de lafase," (A father of value knows what to say, he defends someone. A father will always 'stick up for' his son.)

And by contrast, a bad father is one who says,

"Ma ni tigi t'a shi ye, waliden kunko do, (I've never seen such a thing)." A father who acts as if his child is doing something ridiculous, as if the child belonged to somebody else.

Only one man, from Wella, mentioned that a good father loves his children. In general, the concept of children needing love and affection was not articulated in any of these discussions.

Women's responses

The women were completely fixated on the upkeep aspects of motherhood; feeding, washing, wiping noses and bottoms -- and that good mothers do all of this -- period. One woman mentioned that a mother has to "console the child" when it is sick, and that children "amuse us."

One woman in Folomana said that a good mother gets her children vaccinated. Another in KéBozo said:

"If a mother takes good care of her children, they will rarely fall ill. They will be very strong and their growth will be normal."

None of the mothers mentioned love or affection, or anything about education.

7) What do children eat?

Men's responses

Men were actually asked, "Do you know what your children eat?" Child feeding practices vary from village and village, and men admit playing a small role in this aspect of child care. In responding, it seemed they answered more from the point of view of 'what's done around here,' than what they saw their own child eat that morning.

In general, men said that children receive only breast milk in the beginning. They start solid foods at 5-12 months, beginning with porridge. Children eat from the communal family bowl at 12-18 months.

One man said:

"In the beginning they breastfeed. It is important that the mother drinks a lot during this time. At a year he crawls and eats bouillie. At this time you can also give them goat milk or cow milk, and women use a bottle for this. The child should not eat too early because this will make him sick. After that, the child just follows what his preferences are, eating the same thing as the adults."

Another said:

"...Eventually they eat all that we eat, the same things, toh and fana."

In Koui, the men mentioned that you can give a child medicine to make him have an appetite (ngolobe plant).

Women's responses

Given their preeminence in child feeding, the women did not give very detailed responses to this question, again answering more from the basis of "common knowledge," than "personal experience." They said that children begin with breast milk, then eat porridge beginning in the first year, and can eat the family food by 12-18 months. Several listed "water of life" (sugar salt solution) along with other "foods" that children can consume beginning at six months of age.

At the market, they buy oranges, mangoes, papayas, and fried bean cakes for the children, things considered to be "snacks or treats."

In Dioumediala, they said that newborns get karité butter and citron juice, at 3 months they begin giving tomato and orange juice, at 6 months, porridge, at one year porridge enriched with peanut flour, then fish and meat. The child will be eating all foods by 18 months.

8) Can a man, himself, buy food for the children?

Men's responses

The most common response was along the lines of,

"When you go to the market with your kids, of course you buy them little snacks because they see them and ask for them."

Men's food purchases for children appeared to be limited to these market place snacks, and the choice of food is directed by the children. The most common foods that men buy for their children are: fruits (oranges, papayas, tamarinds, bananas); tomatoes; manioc; fried millet, manioc or black-eyed pea flour cakes (froufrou, like doughnuts); fried potatoes; macaroni, and dried fish. A few mentioned buying meat, fish or peanuts if the children asked for it.

Men could be encouraged to buy dumuni nafama ["good" (healthy) food] for their children, rather than manioc, potatoes or macaroni, and to buy good food even if the child wants something else, or doesn't ask for anything.

Women's responses

In two villages, there were no responses to this question.

In the others, women agreed that men could and often did buy food for the children in the market. Women themselves also buy food for the children, including the same things as men. They more frequently mentioned peanuts.

9) What must be done for children with malnutrition or night blindness?

Men's responses

This question was asked using the phrase dumuni dese bana (food deficiency disease) which many people did not understand. When the term sere was mentioned, men said that there was traditional medicine for it.

For those who answered, the main response is that if the child is sick, you must take him to the medical center first, or go see a traditional healer.

If the child has night blindness, the CARE sensitized villagers know to buy the child meat, liver, or carrots.

In one village, a man said:

"If a child has 'malnutrition,' you give him zaban tea to improve his appetite." They also use the ngolobe plant for increasing appetite.

Another said:

"In the case of malnutrition, you give them 'water of life'(oral rehydration solution.) You use the powder of the zogni, (which is derived from a local plant), in the porridge."

Malnutrition is viewed as the child not wanting to eat, so you cure it with medicine to improve appetite, rather than offering something else to eat, or encouraging or forcing the child to eat.

In Wella, people said they buy meat and eggs, when they follow the advice of the health agents. (It is not clear what determines whether they follow this advice or not). When they have night blindness, they buy Vitamin A capsules and liver.

Women's responses

There was a striking difference in the responses to this question between women from CARE villages and women from non-CARE villages. The women in Kouï and Wella (without CARE health projects) had no idea what dumuni dese bana was, or what to do about it. Basically, they didn't understand the question, and the focus group interviewers did not ask them about sere, fasa or funu-bana.

In KéBozo, by contrast, women said that if a child has dumuni dese bana you give him meat, fish, carrots and porridge enriched with peanuts or beans or potatoes. For night blindness, you give him fish. In Dioumediala, his mother gives him meat and fish for malnutrition, and a Vitamin A capsule for night blindness. In Folomana, he gets enriched porridge with pureed potatoes and beans for malnutrition, and grilled goat liver for night blindness.

Clearly, the CARE monitrices have done an excellent job of teaching people about the concept of malnutrition and how to treat it. While pureed white potatoes are virtually a 'staple' of nutrition demonstrations in health centers in Bamako, peeled white potatoes (which is what they use) have little nutritional value.

D. Diet during pregnancy

Only women were asked to discuss this topic in general terms. Men were asked to respond to specific message concerning diet during pregnancy (See Section K).

Contrary to expectations, women did not report any food prohibitions for pregnant women. There are apparently not any foods which pregnant women are not supposed to eat for any sort of religious or magical reasons, though many say they are advised to avoid salt or spicy foods. No foods were thought to be especially good for pregnant women.

Women do have cravings - usually for foods we know to be protein-rich (meat, fish, chicken) and for fresh fruits. As they say,

"Most of the time we are not able to satisfy our cravings. We have to wait for market days and buy the things we want. We buy small quantities and eat them right there."

In Wella, women reported cravings for earth (clay).

Women find toh, dege, soumbala, and baobab leaf sauce to be repugnant due to the smell or taste. Some also reported losing their taste for karité butter, onions and okra (virtually all of their dietary staples). In general, heavy foods such as toh, dege and couscous should be avoided, but simply because they are difficult to digest and give the pregnant woman heartburn.

E. Success or luck in raising children⁵

Men's responses

Men are more inclined to attribute children's health to the mother's care, or her own physical state. However, they do not tend to hold the woman responsible for either of these conditions. One said,

"A woman whose children are sick is sick herself. She has a sick womb.

In Koungodian, one older man said:

"If a woman has sweet breast milk (a katimi), then her children are weaker and even sickly. By contrast, those who have milk that is "kata kabo, (smelly)" the children are strong.

⁵Note on this question: We were perhaps too delicate in trying ask their opinions on how "parenting skills are "rated" (we thought we could use "lucky" instead of "competent"). Many responded by saying, "Well, you're lucky if your children grow up healthy, they help you in your old age, etc," which parents would universally agree is largely determined by luck.

The opposite (sweet milk, strong children) was said elsewhere.

Another "old notable" commented:

"The appearance of a woman fools us a lot. We haven't found an explanation for this. For example, we have found that when women are large and have a strong appearance they have more problems with childbirth than those who do not impress us with their build."

In Wella, men say that bad luck comes from Allah, from sorcerers, or from "bird" (a bad bush spirit). Good luck is just your destiny from Allah.

In Kouï, one man said:

"You can see the difference between women who have luck and those who do not. It depends upon the woman and the conditions of her household. You can see the negligence in how they dress their children and themselves. If you can see their thighs, you know they are negligent, and you can see their poverty. In this case, you know you will have sick children. There are also women who just do not care (muso t'a yerela).

Another said,

"We do not discuss these matters because this is serious, repeating gossip or scandals."

Another pointed out,

"It is not only the mother who is responsible. The father also has to intervene actively in the treatment. He has to go get the medicine when the kids are sick."

"Men only like to see children who are in robust good health."

With all the things mentioned as causing poor health of children, or their deaths, there is clearly little understanding that many child deaths are attributable to poor nutrition during the first few years of life. Most child deaths are thought to be due to the mother having a sickness in her womb, or to having bad breast milk. It is not clear what the men think when children die at older ages. While the fathers felt it was their responsibility to intervene if a child became seriously ill, there was no clear role in maintaining a child's health.

Women's responses

Many women interpreted this question as "how do you define or identify a lucky mother?" rather than, "what accounts for the good or bad luck a mother has with her children?"

For example, in Folomana, one woman said:

"A woman does not have good luck with her children when they are always sick and are 'glued' to her. People would say that her children are always 'tired.'"

In general, women take a very fatalistic attitude towards child illness and mortality, attributing success or failure with children to Allah. Even if they say that it depends on how the mother cares for her children, it is Allah who helps them care for their children. In Dioumediala, the women said:

"If the child is not well, it is not the mother who is responsible, but Allah. It is the child's destiny."

Likewise, from KéBozo,

"Every mother has her chance in life, it all depends on Allah."

In Koungodian, where Dettwyler and Diarra conducted informal interviews, women were very reluctant to talk about what they thought of women who had many children die. It was considered an odd question. One young mother said that women always expect all their children to survive, even though they grow up seeing children die all the time, and you just had to hope that Allah would be good to you.

Only in Kouï did women say that Allah was not the reason for child illness and death. In Kouï, poor success with children was attributed to the lack of nearby health facilities for prenatal consultations, and a lack of appropriate food during pregnancy. It should be pointed out that Kouï has a CARE well and DAZA project, but no CARE health monitrice. The women of Kouï know that CARE has health projects with monitrices, but that their village does not have one yet - they may be expressing their desire for a monitrice by these statements.

We interpret women's reluctance to accept that idea that they might be able to do things to prevent illness and deaths among children, because it implies that they might be personally responsible for their children's illnesses and deaths. If you can activate the positive, you should be able to prevent the negative. Of course, this is not always the case, and ways of empowering them without also accusing them must be identified.

F. Knowledge of night blindness (in children)

Men's responses

In all the villages, the men were aware of many cases of night blindness, primarily among pregnant women and children. In Wella, the men said that almost everyone in the village had the disease. Older children were mentioned as having night blindness more often than younger children.

Women's responses

Women in every village were familiar with night blindness, and, like the men, said that it is primarily a problem for pregnant women.

In Dioumediala, some women believe that night blindness is caused by using Maggi Cubes in the sauce!⁶

In some villages, women said they couldn't tell who had it, because people don't talk about their problems. Especially in the case of night blindness, it is considered shameful, and referred to as naloma bana or "idiot's sickness" because people who suffer from it stumble around like idiots.

G. Good nutrition for children

Men's responses

In general, men complained of lack of money to buy good food for their children, and lack of "courage." It is difficult to interpret what they mean by lack of courage, unless they just mean that they are afraid to try anything new.

L1 Koungodian, one man said

"We can always find what is necessary if we know about it. Now there's a monitrice who has come here and has meetings with us and with the women. The greatest obstacle is our own ignorance."

The men in Koungodian were very interested in the information offered by the monitrice, and requested their own monitrice, since it was mainly the women who were benefitting from the one they already had. This indicates both a high level of trust and respect for the CARE health

⁶In fact, they started using Maggi Cube, a commercial flavoring agent (mostly caramel and MSG), in their sauce instead of more nutritious, but expensive condiments, such as fish. Hence, it is more likely that the lower levels of fish consumption account for the increase in night blindness, but they observed the linkage with the Maggi cubes. While Nestle's in Ivory Coast is currently fortifying the Maggi Cube with Vitamin A, these fortified cubes (labeled "vitamin enriched" are not available in Mali).

workers, and a eagerness and willingness on the part of the men to learn more about health and to try new ways of doing things.

Women's responses

In the CARE villages, women know what constitutes good nutrition for children, but may say that they do not have the money or the time, or they can't find the products that are being promoted (carrots, especially).

In Folomana, they said:

"Everyone knows that children should start to eat at 6 months, but few people do it on a regular basis."

In Kouï, the women mentioned both the lack of money and the general lack of availability of products.

If the monitrices are mainly suggesting new foods, not available in the village, for children, they might want to try an alternative strategy - focusing instead on feeding practices, rather than new foods (such as mashed carrots, beans in the porridge, etc.). Women need to be taught new ways to feed children with what is already available; otherwise, they will just say "well, that's a good idea (to give the child some new food) but we can't get it here, or we can't afford the money, or it takes too much time." And that will be the end of it.

In Wella, which has had no contact with CARE at all, the women did not understand the concepts of "malnutrition" or "foods which are good for children."

H. Food Preferences

Men's responses

In every village, the responses were the same. Sufficient quantity of food is the most important criteria. This is expressed in such statements as:

"We have to fill our stomachs in order to work well."

"The most important thing is having the quantity to work."

"We are cultivators and do hard work, and that demands that our stomachs be filled."

If they have sufficient quantity, then they also like to have food that tastes good ("is well prepared") and the last priority is to have variety in the diet.

Several people said that they could not afford to be choosy about what they ate.

In Koui, the men said that poor diet was the cause of blindness and being skinny.

In two villages it was mentioned that:

"Young people who left the village to work elsewhere always came back looking healthier, stronger, and more robust than when they left, and also looking better than people who had stayed behind."

They attributed this to the better diet available in other areas.

In general, the head of the household, the husband, and "old people" are given the best foods. This is expressed by such statements as:

"You have to give the head of the family the best part."

"It's the head of the family who gets the best part (of the food), with the possibility for his children to get it from him."

Only in Folomana did people say that elders and young children should share the best foods.

Women's responses

Women, as men, said that sufficient quantity is the most important criteria for food, but women also like good taste and variety (not eating toh all the time).

However, unlike the men, the women in every village agreed that the best foods and any special foods were reserved exclusively for their "husbands." This was mainly because a woman saves good food for her husband to:

"...attract his attention, because if not, then the co-wife will get him that night."

From the woman's point of view, food is used as a bribe to get good will and favors from her husband, and in the competition between co-wives for the husband's attention to her children. It is the custom that food is used for this purpose, and the woman saves the best part of the food she has available, and the husband eats it late at night. Thus, it is not even present during the family meal.

I. Availability of vegetables

Men's responses

The men view the main constraints to raising vegetables as:

- 1) water:they need more wells and better wells
- 2) pests:grasshoppers and locusts eat the crops they do raise.
- 3) supplies:they need seeds and watering cans.

In Niga, they said they prefer to buy vegetables grown by other people.

Women's responses

The women also reported lack of water and locusts as a problem, but in several villages the main problem mentioned was that the sheep and goats get into the gardens and eat all their crops. Birds, lizards, and termites are also problems in some areas.

Usually it is the older women who work in the gardens, because they are the only ones who have the time. They also need more seeds, and complained that they had to pay for the seeds during the cold season, so they couldn't get enough (In villages with a DAZA project, hot season vegetable seeds were supplied by the program).

J. Communications Topics

- 1) **To whom do you go for advice about children's nutrition?**

Men's responses

Traditionally, older women who functioned as traditional healers and midwives were the source of advice about children's eating habits and children's sicknesses. Today, men look mainly to the CARE monitrices, in villages where they work, or to other health agents at the health centers. 'The elders' are still consulted in some villages, but the health workers (from whatever source) are viewed as the more appropriate choice today. Sometimes, people listen to the radio for advice.

Women's responses

These were more or less the same throughout:

"We used to ask the older women who knew effective medicines. Now we receive advice from the CARE monitrice. Sometimes we listen to the radio."

If there is no monitrice, they ask the village hygienist or first aid agent. But for the most part, they said they do not ask anyone for advice.

In Folomana, they mentioned:

"We are thinking about continuing nutrition education programs after the monitrices are no longer here."

2) How is information passed around the village?

Men's and women's responses

In most villages, a griot or other designated man with a drum goes around the village making important announcements which come from the chief. This "public crier" stops at regular locations throughout the village and makes his announcements.

For matters concerning only women, or for personal matters such as baptisms, people go door-to-door, or the information is spread from neighbor to neighbor. Also, female griote can be dispatched by the "responsable politique" for the women in the village.

When the young people need to be gathered together, a horn is blown in the village, and all the young people know to come and here the announcement.

3) Do you listen to the radio; what programs do you like; do you discuss them afterwards?

Men's responses

The men like to listen to the radio, although not everyone has one or has access to one on a regular basis. The favorite programs are:

- The newspaper, read in Bambara (probably the favorite because many rural people do not understand French)
- Death notices
- Programs on "Rural Life" and "Traditional Medicine"
- Readings from the Koran (older men), traditional singers and football matches (mainly the younger men).

Most people listen to the radio between 8-10 am.

One village mentioned Radio Moscow as among their favorites.

They often talk about the radio programs informally among themselves, mostly with people their own age.

Women's responses

Women seem to have less access to radios than men, and listen to them less often, if at all.

When they do listen, their favorites are the 8-10 am broadcast, and Friday's "Rural World" program. The women did not mention the Bambara newspaper program.

They said sometimes they discuss the 8-10 am program themes.

While the men claimed to tell the women about interesting stories, they women said this never occurred.

K. Results of Message Testing⁷

Message #1 Prevention is better than cure.
Bana kunbe ka fisa ni bana furake.

People enthusiastically agree that this is true, mainly from an economic viewpoint - because medicine is expensive, and prevention is usually cheaper and easier. This message is best expressed directly, as is. It should be the first point of a communications strategy to teach people that changing their dietary habits can prevent illness. It should be followed by messages #2 and #3, and then discussion of which foods are good or healthy foods.

Message #2 Good food prevents sickness.
Dumuni duman be bana kunbe.

All the villagers accepted that good food can help prevent sickness, and can make a person strong and able to work hard, as well as being pleasurable. Some were less sure than others, however. Eating "good food" is viewed as part of janto yerela, "taking care of yourself" so that you will age well. People, in general, accept the idea of a link between food and health, but this

⁷See Appendix B for Reactions to messages, and supporting proverbs, listed by village.

idea needs to be reinforced, and applied specifically to young children and to pregnant women. The important distinction between dumuni duman (good food) and dumuni nafama (healthy food), already understood and accepted in the CARE villages, needs to be introduced into non-CARE villages. This must be accompanied by information about which foods qualify as dumuni nafama.

Message #3 Healthy food prevents sickness.
Dumuni nafama be bana kunbe.

People in the CARE villages understand the distinction between dumuni duman and dumuni nafama. They can give examples of healthy foods, and are convinced that it helps prevent sickness. As mentioned in #2 above, the main focus should be on the distinction between foods which are "good" merely because they are tasty or people think they have high status (bread, macaroni, potatoes, cakes, Cube Maggi, etc.) and foods which are "healthy" - the protein and Vitamin A rich foods. This message should be the cornerstone of the Vitamin A communications strategy, accompanied by information about which foods are "healthy foods" and also by visual images.

Message #4 Fruits and vegetables are healthy foods.
Yiri-den ani nako-den be dumuni nafama.

Message #5 Eggs, meat, and liver are healthy foods.
Shea-fan ani kami-fan, ani sogo, ani binye be dumuni nafama.

These messages were generally accepted, although some people had difficulty understanding them, because there really aren't such concepts as "fruits" and "vegetables" in Bambara. The literal translations are "tree-children" and "garden-children", and people do not view these foods as being part of general categories. Likewise, they do not really see any connection between meat, fish, eggs, and milk (especially not when you lump peanuts and beans in with them), because they do not understand the concept of "protein" [except in a few CARE villages where people know the Three Food Groups categories]. These statements probably will not "stand alone" as messages, but need to be incorporated into the nutrition education sessions about which foods qualify as dumuni nafama.

In other parts of the world, messages that talk about meals, and what foods should be eaten together in a meal, or put together in a pot or bowl, seem to be better understood than classifying foods into what appear to be arbitrary categories. This approach might be more promising than the "Three Food Groups," but needs to be developed for Mali.

The idea that the "medicine" for an illness could also prevent it is not well accepted or understood, so the fact that liver is a traditional cure for night blindness can both work for and against a Vitamin A deficiency program. It would be like suggesting that taking radiation therapy could prevent cancer. Or that not eating salt could prevent high blood pressure. It might be

better to promote the consumption of Vitamin A rich foods for prevention, and save the available liver as a treatment for people who already have the disease.

Message #6 Vegetables conserve their richness when dried in the shade.

This message has potential, since many people agreed that shade-dried foods looked more natural and had better taste than sun-dried foods. However, it did not go over well as stated. In some villages, we had to explain that it was possible to dry vegetables in the shade, because people did not know what we were talking about. Sometimes they agreed with the statement, once understood, other times they disagreed. Advantages of sun drying include that it is faster. In one village, people mentioned that the okra dried in the shade turned black and tasted bad in the sauce (it became moldy). In another village, there was confusion over this statement because the DAZA personnel have been teaching people to dry their garden produce in the sun (rather than just eating it all fresh). This concept will take a lot of explaining, and will need to be coordinated with the DAZA project personnel.

Message #7 A pregnant woman needs to eat a richer diet than her ordinary diet.

Most people agreed with this statement, because they recognize that pregnancy is tiring for the woman, and that pregnant women are not like other women. Health workers can begin with the accepted proverb:

A person who is one and a person who is two (a pregnant woman) are not the same.

Mogo kelen don ani mogo min fila don, o te kelen ye.

They can then expand that to talk about women needing extra food. The difficulty will be in finding ways to provide this extra food for the pregnant woman. The focus should be, again, on whatever is available to the population at that time of year. During the rainy season, it might be milk and eggs, during the dry season it might be mangoes. This message can "stand alone," and be understood, but it needs to be accompanied by concrete, practical suggestions for how to accomplish it.

Men discussed the positive attributes of a husband that is happy to be married and takes care of his wife, "furukelan." Perhaps communications could capitalize on this, for example:

"Don't wait until your wife is stumbling around the compound with night blindness - be a good husband and offer to buy her extra carrots, liver, milk, etc."

VL FOOD AVAILABILITY AND CONSUMPTION

A. Introduction: How the data were collected

During the December survey, women were interviewed regarding the typical daily diet in their compound. We asked: "what do you usually eat for breakfast, lunch and dinner, and what additionally do your children eat in the afternoon?" For the staples, we asked what kinds of sauces were usually prepared, and what the ingredients were for each sauce. We also asked people to estimate how often they ate certain foods (known to be rich in Vitamin A).

The villagers were not used to questions such as, "how often do you eat X food", "how common is X disease?" We found that events, and specifically, consumption are opportunistic. Individuals do not choose to consume a particular food based solely on their like or dislike of the food. They eat foods they can get. When meat is available, they try to buy some; when it is mango season, everyone eats mangoes; if they have money for carrots on market day, they buy some.

During the March survey, we revised our questionnaire to limit it to available Vitamin A-rich foods which we believe could be promoted by our program.

The questionnaire was administered in two villages: Bangou-Marka, (which has been a part of the CARE project for some time, and has an active garden project and a health component) and Kcnkambougou, (which has not had any prior contact with CARE).

It should be kept in mind that there is a great deal of variety in the diet between villages and between regions, as well as at different seasons of the year. Foods available near the river, or at the major Saturday market in Macina, may not be available in more distant villages or in smaller markets. Fulani women visit some villages to sell their milk, but not others. In the southern parts of the country, several varieties of millet may be grown, as well as corn and rice, and the leaves of wild and domesticated plants may be consumed much more frequently than they are in the region around Macina. Goats, sheep, cows, and chickens may be more plentiful in the south than they are in the north. Therefore, the following information should be taken as a general guide only, remembering that the research was done primarily in Bambara and Bozo villages in a very arid region of the country.

B. Daily diet

Generally speaking, in the Macina region, the breakfast food of choice is moni made from millet flour. In addition to millet and water, moni often contains one or more of the following: sugar, salt, lemon, orange, tamarind (n'tomi), white dah, sour milk, and pounded peanuts (put only in children's moni).

Noon time and evening meals are based on one of the two staples -either millet or rice. Millet is pounded into flour and made into toh (a thick, porridge) or bashi (cous-cous). Rice (kini or fana in Bambara) is steamed and then boiled. The amount of rainfall and/or the possibility of irrigation determines whether rice can be grown. If rice must be purchased, its cost and availability may limit consumption, and of course, tradition plays a role in determining whether rice or millet is eaten more often.

In the Bambara villages, millet is usually the base for lunch and evening meals, as well as breakfast. Rice is eaten occasionally, and must be purchased in the market. In the Bozo villages, rice is eaten more often than in the Bambara villages. At noon, rice is alternated with millet toh or bashi. Toh is usually eaten at night. In some regions, the villagers used to grow rice, but have not been able to since the drought. They are able to buy it in the market.

Different kinds of sauces are prepared for serving with millet and rice. Sauces that go with toh are not used for rice, and vice versa. The most common sauces for toh are those based on baobab leaves or okra; fresh in the rainy season, dried the rest of the year. All sauces include salt. Villagers prefer "white" salt purchased in Macina over "black" salt which comes from Taodenni -they say the black salt is dirty. This is significant because the salt from Taodenni contains iodine while the white salt from Macina does not. If CARE officials want to decrease the incidence of iodine deficiency in the villages, a mild but widespread problem, they will need to overcome villagers' aversion to Taodenni salt, or find some other source of iodine. The most common sauces for rice are fish and tomato, peanut butter, and soumbala⁸. Sauces for bashi include fresh peanut sauce and bean leaf or nporon leaf sauce.

C. Vitamin A Rich Foods

Informants were asked about their consumption of all potentially available foods known to be rich in Vitamin A, including meat, fish, milk, eggs, red palm oil, mangoes, squash, carrots, tomatoes, onions, okra, baobab leaves, and other green leaves. {Although sweet potatoes are usually considered an excellent source of Vitamin A, only the deep-orange sweet potatoes have significant amounts of the Vitamin. The yellower variety of sweet potatoes are not noted for their Vitamin A activity, and the kind of "sweet potato" grown in Macina and other parts of Mali has white flesh, and contains little or no Vitamin A. Sweet potatoes are considered good to eat,

⁸ Unfortunately, soumbala as a flavoring for sauce has been replaced by Cube Maggi, and in some areas Cube Maggi has been replaced, in turn, by "white" Cube Maggi, which is mono-sodium glutamate crystals. Soumbala, which is the fermented bean of the locust tree, contains protein and vitamins. Cube Maggi is primarily salt. Thus, the shift from soumbala to white Cube Maggi means a less nutritious sauce.

however, and people grow them in their gardens. Perhaps a Vitamin-A rich variety could be introduced.}

Meat/sogo

Meat is eaten rarely in these villages, because goats, the primary form of livestock, are only killed when the owner needs ready cash. Estimates of how often a goat was killed in the village ranged from several times a year to once a month. During the rainy season, the goat herds are sent to the river, so meat is eaten less often. During the cool and dry seasons, the goats are kept in the village, and are available both for milking and for slaughtering. Therefore, meat and milk consumption from goats is higher in the cool and dry seasons than in the rainy season. When meat is available, it is cut into chunks which are put in the sauce. All parts of the animal are used.

Liver/binye

The responses for the questionnaire on liver came from Konkambougou. Liver is available all year round, but only at the market, on market day. Some people buy liver, but not a lot. It can be purchased either raw or grilled, for 100-200 CFA for a small pile. It is eaten cooked, in the sauce, and there are no prohibitions for children or pregnant women eating it. Young children may eat it only if they are already eating other foods as well. It is thought to be good for you simply because it is "meat."

Fish/djege

Because of the proximity of the Niger River, [and, before the drought, a number of fresh-water lakes replenished each year during the rainy season when the river flooded its banks], fish plays a much greater role in the diet than meat, especially for the Bozo. In the Bambara villages, fish is eaten almost every day, usually in its dried or smoked forms. Fresh fish is rarely available, and not in large quantities. Fish is used to flavor the sauce, and often is not identifiable (ie. you can't see pieces of fish, but you can taste the flavor). If people can afford it, they will fry small fish especially for the children, as a snack between meals, or as "dessert."

In the Bozo villages near the Niger River, fresh fish is available in much greater quantities and is often eaten at both noon and evening meals. The Bozo smoke and dry fish to preserve it. They also sell a lot of fish in the market to earn money for other foods, or non-food expenses. [They may also trade fish for milk from the Fulani, but this was not asked specifically.

The food availability/consumption surveys were conducted in Bambara villages relatively far from the river. According to the survey, fish is available all year round, in the weekly markets held in the larger villages. It is usually purchased in its dried or smoked form, but occasionally fresh fish is available. People usually buy 100-200 CFA worth of fish, several times a week. Large families may spend 300-500 CFA. If the price were cheaper, people would buy more. Fish is practically a staple in the diet, and the main source of protein for most people. They eat fish every day, one to three times in the sauce for toh and kini, or cooked with potatoes. Some people in Bangou-Markou use fish to enrich the porridge for toddlers. Fish is considered good for young children and pregnant women. Both young children and pregnant women can eat fish.

It is said to provide "strength" to babies, and to make it easy to wean them. Several women said they give fish to the children when they are "busy with work," and then the children are happy. One woman in Bangou-Marka said that fish is full of vitamins and is important for pregnant women so they will have healthy babies. In Konkambougou, people said they eat it "because it is their food," but they don't know if it is good or bad for you.

During the focus group interviews in other villages, people often talked about the drought of 1974-75, and how it had dried up the fresh water lakes in the region. This resulted in a drastic reduction in the amount of fresh fish available. Kouï, for example, is a Bozo village located far from the river, but previously near two large lakes, which are now dry. The people used to make their living from fishing and trading excess fish for other necessities. Now they have to grow millet, which they view as degrading, and make baskets to trade for other foods. A number of people noted that before, when plenty of fish were available, people did not get night blindness.

Fish oil/tineni-tulu

Fish oil is found in the markets, sold by the liter or in smaller quantities. There was some disagreement about whether it could be found all year round. Apparently it is available from time to time, year-round, but people cannot always find it. The price varies depending on availability as well, ranging from 200-500 CFA per liter. Most people buy 25-100 CFA worth at a time. Some people say they use karite instead of fish-oil, because karite is cheaper. It is used in the sauce, as a flavoring, when available. Consumption estimates ranged from three times a year, to two to three times a day when it is available. Children and pregnant women can eat fish oil. In Konkambougou, as always, children under one year of age cannot eat anything, so they do not consume fish oil either. However, people say that older children really like fish oil. Women say they like the taste of fish oil when they are pregnant. Women in Bangou-Marka also said that fish oil gives "life" and strength to the fetus, that it is good for both the pregnant woman and the fetus, and that it contains "vitamins."

Milk/nono-kene or nono-kumu

The Fulani cattle herders of the region serve as the main source of milk for the villagers. During the rainy season, the cows produce a lot of milk, and it is available every day. Villagers consider milk to be inexpensive during the rainy season, and buy some almost every day from the Fulani women, who travel door-to-door through the village offering milk for sale. Fulani women also sell milk in the weekly markets held in the larger villages. A few women have cows or goats of their own which they milk.

During the dry season the Fulani herds may move away, and/or the cows produce less milk, so the Fulani may not have any extra to sell, or it may be too expensive. In some villages, women said no cows' milk was available during the dry season, while others said it was simply too expensive, so they bought it less frequently.

Milk is usually purchased in small amounts such as one coffee cup full or 1/4 liter. One cup of milk can also be exchanged directly for one cup of millet grain. People said they would buy more if it were cheaper, because they like milk very much.

Milk is usually consumed in its sour form (nono-kumu), either by itself or added to moni, and is usually sweetened with sugar. Sometimes milk is mixed with bashi or toh. Milk in Mali is not usually skimmed. Children sometimes get fresh milk (nono-kene), by itself or mixed with moni, but they usually drink it sour as well.

In Bangou-Marka and Konkambougou, people said they drink milk several times a day, usually in the morning between 9 and 10 am, and again in the early afternoon. Presumably, these times correspond to when the cows are milked. Children also get milk several times a day. Children less than one year of age may not get any milk, either because it gives them diarrhea, or because women think that if they are still nursing (getting their mother's milk) they don't need cows' milk.

Milk is considered to be a good food for children, making them strong and healthy, and fighting disease. People also mentioned that children really love to drink milk. Pregnant women are also thought to benefit from milk. It is said to make them strong, to make them "feel good," to cure heartburn and stomach aches, and to make the fetus strong. The women from Bangou-Marka were more likely to say that milk makes the fetus strong, and the women from Konkambougou were more likely to say that it made them feel good themselves.

Butter/nare

Butter is available during the rainy season (when milk is in good supply). People usually buy it at the market, though some people in Bangou-Marka make their own and sell it to other villagers. Many people buy it at the market, usually 25-50 CFA worth (you can buy one cup full for 25 CFA, 2-3 big spoons full for 5-10 CFA). People tend to view it as expensive.

People eat butter one to two times a month, but more often during the season of peak availability, up to once a day for some people. It is eaten fresh (not clarified), either by itself, mixed with milk, or mixed with dege. Children can eat it, even very young children. Sometimes, newborns are given butter to eat their first week of life.

The only prohibitions to eating butter are those that are associated with the consumption of dege. Young children are not allowed to eat dege, and pregnant women usually don't eat dege either. Dege is said to give young children stomach aches, and to give pregnant women heartburn. Butter by itself, on the other hand, is said to be good for children, and to cure stomach aches. Butter is thought to give strength to pregnant women, to be good for their skin, and good for the fetus.

Karite oil/she-tulu

Karite oil (a hydrogenated oil made from the shea nut, resembling "Crisco") is used as a common source of cooking oil. It is used for frying, and it is put in the sauce to make it taste and smell better. It is available all year, and most people buy it in the market, although two respondents said they make it themselves. Generally speaking, villages in areas with karite trees (such as Folomana) process a large amount of oil, a very time and labor-intensive task, and sell the excess at the market. People from areas without karite buy karite oil in quantity in the Macina market or other large markets, and resell it in the smaller weekly markets in their region. A week's worth of karite costs about 200-250 CFA (approximately 1/2 kilo).

Everyone uses karite in cooking the sauce for both kini and toh, so it is consumed one to three times a day, every day. Children and pregnant women can eat karite. Young children can eat it if they are old enough to eat in general. It is sometimes given to younger children as a breast milk substitute if the mother's milk is insufficient. It is said to give strength to children and pregnant women.

Red palm oil/tulu-bilen

Red palm oil is an excellent source of Vitamin A. However, it is rarely available in the Macina region. In Bamako, red palm oil is considered more flavorful and has a higher "status" than peanut oil. However, it is also more expensive than peanut oil, and is used more as a flavoring than as the principle source of oil in the sauce. Thus, while promoting the consumption of red palm oil is a feasible option for a nutrition communication program in southern Mali, it is not appropriate for this region, unless sufficient demand can be created that supply is increased and price decreased.

Chicken and guinea fowl eggs/sheafan and kami-fan

Chickens and guinea fowl were observed in all the villages. Eggs are usually allowed to hatch, rather than being eaten as eggs. When eggs are consumed, they are boiled and eaten as a snack. Chickens are occasionally killed and used in the sauce, but mainly for feasts or celebrations, or for special visitors. Chickens are also given away as gifts to visitors, and to new mothers.

According to the March survey on availability and consumption, chicken eggs are available all year round, while guinea fowl mainly lay eggs during the rainy season. Only a few people in each village raise fowl. Eggs can be purchased in the village from whoever has them, or in the market. They are purchased fresh or hard-boiled. The usual price is 20 CFA for each egg, but it may go as high as 50 CFA, depending on the season. People usually buy only one or two at a time and eat them at the market. Most people consider eggs to be relatively inexpensive.

Frequency of consumption varied widely, from "every day in the rainy season" to 1-3 times a month. A number of people said that they didn't eat eggs at all. They are eaten alone, hard-

boiled, not as part of a meal. Most people said that children under one year of age could not eat eggs, but that they were all right for older children.

The two villages showed a distinct difference in their attitudes towards egg consumption, especially for pregnant women. In Bangou-Marka (the CARE village), people said that eggs were good for the fetus, and gave the pregnant woman strength and "good blood." One woman said "Eggs are not expensive because the monitrice talked to them about how good they were. Since the monitrice arrived, people have raised chickens and guinea fowl." They also said that eggs were good for children in general.

In Konkambougou, women said that eggs were not good for pregnant women, and would make childbirth difficult. When pressed, they just said that not eating eggs during pregnancy was an "ancient tradition." The women said that eggs were particularly bad for children, interfering with their development by delaying walking and talking, and causing difficulties teething. Also, in Konkambougou generally, children are usually not given anything to eat before one year of age, but even a child of 25 months was described as too young to eat eggs.

Squash/je

Various kinds of squash are grown during the rainy season in some of the CARE villages, but not in non-CARE villages. Some people grow squash in their corn fields, after the corn has been harvested (rain-fed). Others grow squash in their gardens (watered from the well). The peak season for squash comes at the end of the rainy season (August-October). Some of the squash is sold at the weekly markets, and purchased by people from other villages. Only a few squash were observed in the markets during the two surveys, but neither survey was held during the rainy season.

Although people like squash and buy it frequently, it is generally considered to be expensive. It may be sold whole, or in pieces, with prices ranging from 75 to 125 CFA per piece, and up to 250 CFA for an entire, small squash. People generally buy only one piece and eat it, either boiled by itself, between meals, or added to the sauce.

Everyone agreed that children and pregnant women can eat squash. For children under one year of age, the villagers of Konkambougou said they could not eat it, while those of Bangou-Marka said it was fine. The two villages differed drastically in their beliefs about the merits of squash as a food. The villagers of Konkambougou (the non-CARE village) said that children under one year were too little to eat any food, including squash. One woman also said that squash would make a young child sick. The pregnant women of this village eat squash, but only because they "like to eat other foods" when they are pregnant, and because it tastes good between meals.

In contrast, the villagers of Bangou-Marka said that squash is a food which can "protect children from illness." It keeps them from getting sick, gives them healthy skin and fights against skin infections. One woman said her 10 month old was rarely sick because she gives him squash every day. They said squash was good for pregnant women because it kept them from becoming constipated, and helps prevent anemia (i.e. makes the blood strong).

Carrots/carotti

Carrots are the quintessential "Vitamin A" food, and have been promoted as preventing/curing night blindness already by some of the CARE monitrices. Carrots are grown in a number of villages which have CARE wells and garden projects, and in villages near the river, and are then sold either within the village or at the weekly markets. Carrots are still relatively new in the region, and people from villages where they are not grown often do not know what they are, or how they should be prepared.

During the first survey, no carrots were seen in the markets in Saaro or Macina, although carrots were plentiful and cheap in Bamako and Segou in Nov/Dec 1989. In March 1990, there were three vendors selling carrots in the large Macina market on Saturday, but none in the smaller weekly markets. The price of carrots depends on the size, with small ones selling for 10 CFA and large ones for 25 CFA. Some people consider carrots to be a relatively expensive "treat," but they have some prestige value because they are new, and associated with white people. One woman from Bangou-Marka said "They're not expensive because they're good for your health."

One noteworthy aspect of carrot consumption is that in those village where carrots are only available in the market, a number of women said that when they buy carrots ("when we can afford them") they usually buy two or three, and they eat them themselves while they are at the market. They are eaten as a snack, and as a treat. They are seldom brought home for sharing with other family members. Women said that they couldn't afford to buy enough for everyone in the family, so they just bought a few for themselves. If they had a child with them in the market, that child might get one, but not the children at home. During the market survey in Macina, adult women, adult men, and older boys (10-14) were seen purchasing from one to four carrots, and eating them on the spot. One boy bought two and shared them with his friends.

During the first survey, when we asked whether carrots were eaten fresh or cooked in the sauce, informants (with one exception) looked at me incredulously and said "You can't cook carrots!" Apparently, in many villages, carrots are normally eaten raw. Only one woman said that she occasionally put carrots in the sauce. Everyone else said they didn't know that carrots could be cooked. During the second survey, women in Bangou-Marka said that carrots could be cooked and put in the sauce, or boiled and mashed up with milk for infants.

The issue of knowledge of cooking carrots is important, because, for most people, the main objection to letting little children eat carrots is that they don't have enough teeth. As with squash, if cooked and smashed carrots were introduced as a special food for babies, they would have a new source of Vitamin A. You still have to overcome the reluctance of some villagers to give children under one year of age anything to eat, but you would at least have removed the obstacle of texture.

In Konkambougou, where carrots were basically unknown, people felt that no one should eat them, including children and pregnant women, but they had no particular reasons, just "we don't know about this food." In Bangou-Marka and Macina, women said that carrots contain vitamins

which prevents night-blindness, and so were especially good for children and pregnant women. Other women knew that carrots provided good health, and protected you against unspecified illnesses.

Tomatoes

Tomatoes are a common sauce ingredient in Mali. In Bamako, fresh tomatoes are available year round and are inexpensive. Tomato paste is also widely used as a flavoring. In the villages of Macina, most people must make do with dried tomatoes or tomato paste for part of the year, with fresh tomatoes being available during the cold season and the beginning of the hot season (November-March).

Some people grow their own tomatoes in their gardens. In Bangou-Marka, many people grow them, but in Konkambougou, only one respondent said she grew tomatoes. People who don't grow them buy them in the weekly markets. They are considered to be "a little expensive," ranging in price from 10-25 CFA each. Some people buy a large quantity during the Macina market, and resell them in their home village (purchase at 2 for 25 CFA and sell at 1 for 25 CFA). Typically, when asked if they would buy more if the price were cheaper, people said "yes" for every food except tomatoes. Apparently, people already buy as many tomatoes as they need, and if the price were cheaper, they would spend their money on other foods, or save it, rather than buy more tomatoes.

Tomatoes are eaten every day, sometimes two or three times a day in the sauce for kini and toh. Tomatoes were mentioned more often as sauce ingredients in the Bozo villages than in the Bambara villages. In the Bozo villages, fish sauce, peanut butter sauce, and onion sauce all include tomatoes. In the Bambara villages, the most frequent sauces are made with okra, or with baobab leaf powder, without tomatoes. Only the peanut butter sauce served with rice, which is eaten infrequently, had tomatoes in it, and they were dried tomatoes. Tomatoes are normally dried in the sun.

In CARE villages, some women give their young infants tomato juice as well, one to three times a day. Tomatoes are seldom eaten raw or by themselves as a snack, and some people were surprised at the question (they didn't know you could eat tomatoes raw, just as they didn't know you could cook carrots). Tomatoes are added to the sauce to improve the taste and the color.

Young children and pregnant women are allowed to eat tomatoes. Infants under one year cannot eat tomatoes in Konkambougou, but in Bangou-Marka, they are fine for infants after five months. In Konkambougou, tomatoes are said to cure stomachaches in pregnant women, and in Bangou-Marka women said that tomatoes are good for your health in general, protect you against illnesses, and give you energy and a "good life."

Okra

Okra is one of the staple sauce ingredients in all of the villages, particularly the Bambara villages. Okra is grown in the corn fields during the rainy season, and is eaten fresh during this season, as the main ingredient of the sauce for toh. Reportedly, "everyone" grows okra in their fields, and some people grow it in their gardens as well. For most of the year, okra sauce is made from reconstituted dried and pounded okra (okra powder). Okra sauce may include dried fish, pounded peanuts, and salt. In the markets in Saaro and Macina during Nov/Dec 1989, dried okra was abundant and inexpensive, but fresh okra was not seen, even though fresh okra was available in Bamako and Segou at this time. In March 1990, there was only a little dried okra still available in the markets.

Pregnant women and children who are old enough to eat, all eat okra. The main sentiment expressed regarding okra was one of "love." People said repeatedly that they "love" okra, that it tastes wonderful, that it is good to eat, that it makes you strong, and that it makes you feel full. In Bangou-Marka, one woman said that it will make babies strong and give them good blood and vitamins, and another said that pregnant women should eat okra because the vitamins in okra would pass through the mother to the fetus and make it strong.

Sweet potatoes/je wusu

Sweet potatoes are available at different times of the year in different regions. Some people said sweet potatoes were most common in the hot season, although others said it was also available after the rains. Apparently, some people grow sweet potatoes in their dry-season gardens, and others grow it in their fields during the rainy season. In Bangou-Marka, many people grow sweet potatoes in their gardens along the banks of the river. Other people buy sweet potatoes in the market, with the people from Bangou-Marka saying that sweet potatoes were inexpensive, while those from Konkambougou think they are expensive. In the market, one can purchase sweet potatoes either raw or already boiled (for immediate consumption, as a treat). People usually buy 5-10 sweet potatoes at a time, depending on the size of their family and what they can afford. Prices range from 1 for 25 CFA for large potatoes, to 6 or 7 for 10 CFA if they are small and there are a lot available.

People generally eat sweet potatoes once a week, on market day, or more often if they have their own source in their gardens. A few people put sweet potatoes in the sauce, but more often it is eaten boiled, by itself, as a snack. Some times it is cooked together with tomatoes and karite as a "side dish." Sweet potatoes are considered to be good food for children who have started eating, and for pregnant women. In Bangou-Marka, people say that sweet potatoes are very good for young children, because they are full of vitamins. They also consider them to be very good for pregnant women. In Konkambougou, people said they didn't know if sweet potatoes were good or bad for people, they just ate them because they liked the taste, and because they fill up the stomach.

Locust bean powder/nere mugu

Locust bean powder is usually available throughout the rainy season. Most people buy it in the market, as it does not grow wild in this region. Many people buy it each week, and it is not considered to be expensive. One bowl sells for 25 CFA. In Bangou-Marka, people say they eat it one to three times a day, while in Konkambougou, they eat it one to two times a week, on market day. It can be eaten by itself (the phrase people use is "we suck on it") or it can be mixed with water. People like it for its taste. As usual, people in Konkambougou said that children under one year should not eat locust bean powder. In Bangou-Marka, people said that locust bean powder makes a baby strong. Pregnant women are allowed to eat locust bean powder, but they don't have any opinions on whether it is "good" for her or not.

Onion leaves/jaba bulu

The green tops of onions are eaten in the sauce in this part of Mali. They are available in the hot season (March-June). Many people in Bangou-Marka grow onions in their gardens, while people in Konkambougou buy onion tops at the weekly market. In the market, onion tops are sold in the dried state, and cost 25 CFA for a cup's worth. People usually buy two to four cups' worth for the week. Onion tops are used as a sauce ingredient, and eaten every day, at least once. They are used mainly to flavor the sauce. People stressed that sauce made with dried onion tops was very good to eat, and helped people eat more food (*kini* or *toh*) than they would otherwise. Pregnant women and children are allowed to eat onion tops, but children who are less than one year old usually don't eat sauce, so they don't have the opportunity to eat onion tops. In Konkambougou, this can be attributed, once again, to the general taboo on children eating before one year of age. In Bangou-Marka, one person said that eating anything before one year of age would retard the child's physical development. No one thought onion tops were particularly good for one's health - they are valued for their taste alone.

Bean leaves/sho bulu

Beans are grown in the gardens and in the fields in Bangou-Marka, but not in Konkambougou. Bean leaves are available most of the year, except during the hot season, when there is not enough water to grow beans, even with a well. Many people in Bangou-Marka grow beans, but some people think they are a lot of work, and some people eat only the beans, but not the leaves.

In Konkambougou, no one eats bean leaves, because they do not know that they are edible. Young girls who have lived in the "city" know that they are edible, but people can't raise them in gardens because they don't have wells during the dry season, and there is too much rain during the rainy season.

In Bangou-Marka, where bean leaves are available, they are eaten three to four times a week, cooked in the sauce to improve its flavor. Pregnant women and children can eat them, including little children after they are six or seven months old. One family in Bangou-Marka said that they did not eat bean leaves at all. In Bangou-Marka, people said that bean leaves are good for children because they make their blood strong, give them good health, and protect them against illnesses. They are also good for pregnant women, giving them good health and fewer minor illnesses, like fever.

Squash leaves/je bulu

People grow squash in their gardens or in their fields during the rainy season, so technically squash leaves are available at that time. However, most people in this region do not know that the leaves of the plant are edible, so they do not eat them at all. In Konkambougou, the young girls who have been to the "city" may use them in the sauce when they can't find other condiments, but most people don't eat them. In Bangou-Marka, only one woman said that she ate the leaves. During the rainy season, she uses them every day in the sauce, or eats them cooked by themselves. She said they were good for your health, good for your body, and helped relieve constipation in pregnant women. She said even young children could eat them, little by little.

Baobab leaves/zira bulu

Baobab leaves are a staple ingredient in the sauce for toh in this region, and the consumption of baobab leaves is therefore inextricably linked with the consumption of toh. Baobabs grow wild in the region especially near the Bambara villages, but are not found as frequently in the areas near the Bozo villages. Some villagers themselves collect the baobab leaves on a family-by-family basis, while others usually buy them in the market. In some villages in the eastern part of the Macina region, millet toh with dried baobab leaf powder sauce (made from water, dried baobab leaf powder, salt, and hot peppers) is eaten once or twice a day, every day, all year round.

In the Bozo villages, during the rainy season, fresh baobab leaf sauce may be made for toh. However, for most of the year, only dried baobab leaves are available, and they are used as a flavoring in other sauces, rather than as the basis for a sauce themselves. Bozo villagers do not care for dried baobab leaf powder sauce. Fresh baobab leaves are available during the rainy season, and for a month after the ends of the rains, but for most of the year, only dried baobab leaves are available, and only dried leaves were for sale in the markets. Dried baobab leaves sell for 25-50 CFA per cup, which most people feel is not expensive, though more people would buy them if they were cheaper.

In Bangou-Marka, people claim that they purposely plant baobab trees in their corn fields, and collect the leaves from these semi-domesticated trees. In other villages, people thought this was a ridiculous idea, and denied that anyone could grow their own baobab trees. There may have been some problem with the respondents not understanding this question in Bangou-Marka, or it may be that this practice is only known in one village.

Toh can be eaten by older children, and by pregnant women up to the latter stages of pregnancy. Toh cannot be eaten by young children (less than one year of age) because it is "heavy," and difficult to digest, and causes problems with the legs for children who are not walking yet. For these reasons, young children do not consume baobab leaves. One woman in Bangou-Marka said that toh gives children diarrhea and makes them stupid. Other people said they had never given any thought to whether baobab leaves were good or bad for you, it was just what they could find, so it was what they ate every day. Several people said that when a woman's pregnancy was far advanced, she should not eat toh (and therefore not eat baobab leaf sauce) because it was difficult to digest, and it makes it difficult to sleep at night.

Mangoes/mangaro

Mangoes are an excellent seasonal source of Vitamin A, and are consumed in all of the villages of the study. Mango season is the hot season (March-May/June), and mangoes are plentiful and very inexpensive during this season. Some villages have their own mango trees, while others buy mangoes in the market. Everyone eats a lot of mangoes during mango season, ranging from once a week to as many as 3 or 4 a day. Children are especially fond of mangoes, which are one of the few sources of sugar in the diet. When I asked women if little children were allowed to eat mangoes, many responded that they purchased mangoes especially for the children, because children love them so much. Some people think that eating too many mangoes can cause diarrhea, but no one said that children should not be allowed to eat them for this reason. More commonly, people said that young children could not handle the fibers, especially if they had no teeth yet. Pregnant women eat lots of mangoes, as often as they can, because "they taste good" and "they make me happy."

Mangoes are purchased ripe in the market, and people usually buy 5 or 10 at a time, sometimes more. They are considered inexpensive during the peak of the season. Typical prices are 5-25 CFA each depending on the size, and the variety. In some regions, only the local mangoes are available. These tend to be small and fibrous, and not as sweet as other varieties. Some have a distinct "turpentine" odor/flavor, which some people don't like. Other varieties are brought in

from southern Mali and other countries, including the "American" mangoes, which are large, very sweet and juicy, and have few or no fibers.

Guavas

Guavas were abundant in the markets in Macina and Saaro in Nov/Dec, but have a short season of only one to two months. However, they are available in the cool season, when few other sources are available in the market. Guavas are not as popular as mangoes, and could be promoted as a source of Vitamin A. Because of their short season of availability, they were not included on the list of Vitamin-A rich foods during the second survey.

Papaya/manje

Papayas are rarely seen in the Macina region, but they can be found from time to time in the larger markets. It is considered to be expensive. People usually buy one or two small pieces for 25 CFA per piece. Whole papayas cost 150-250 CFA each. It is eaten fresh, the day of the market, by itself. Frequency of consumption ranged from "never" (because we can't find it) to less than once a month. There are no prohibitions against young children and pregnant women eating papaya. In Konkambougou, it is not given to children less than one year of age. Once the baby is walking, it is all right for it to eat papaya, which is not a "heavy" food like toh, and therefore will not interfere with the baby's walking. In Bangou-Marka, papaya enjoys almost a medicinal status. It is said to be a good treatment for many illnesses, purifying the blood and fighting childhood fevers. It is also said to be good for children because it contains "vitamins" and because it is a "fruit" and fruits are good for children. Also in Bangou-Marka, people say that papaya is good for pregnant women and for their fetuses because it fights many illnesses.

Rone palm fruit/sebe.

Sebe is the fruit of a wild palm tree which grows in some parts of the Macina region. It has a sharp, bitter taste. It is available at the end of the hot season and during the rainy season. Most people buy it at the market, although some gather it themselves in the bush. Like karite, in regions where the palms are plentiful, people gather it and re-sell it in the market. It is considered to be inexpensive, with prices as low as 3 for 5 CFA during the peak of the season. It can be eaten either fresh or cooked (boiled), and is eaten between meals, as a snack. People eat it often during the season, as often as once a day, if they can find it. People like the taste. Children and pregnant women can eat sebe, and little children can eat the juice. Some people said that little children cannot deal with the fibers in sebe. One woman in Konkambougou said that, as with other foods, children under one year should not eat it.

For children who are already eating food, sebe is thought to be very good. It's juice is sweet and easy to digest. It also is thought to combat malaria. For pregnant women, sebe is said to be good for the health, to be easy to digest, to work as a laxative, and to reduce edema (swelling)

in pregnancy. One woman in Bangou-Marka cautioned that sebe could give children and pregnant women stomach aches.

Red peppers

Hot red peppers are a good source of Vitamin A and a common sauce constituent, especially in the Bozo villages. Some villages grow red peppers in irrigated gardens near wells, and peppers were plentiful in the market both fresh and dried. It would be difficult to increase young children's consumption of hot red peppers in sauces. However, if the peppers were dried in the shade, the same amount of pepper (and therefore spiciness) in the sauce would provide more Vitamin A.

D. General recommendations

The recommendations below are listed in order of priority to increase the consumption of Vitamin A rich foods among young children and pregnant women:

- Begin food at 4-6 months of age [by six months, the child should be eating several times a day, every day]
- Teach caretakers how to encourage children to eat when they are sick or just do not wish to eat
- Encourage cultivation of Vitamin A rich foods in gardens [only possible where wells or other water sources are available]
- Encourage the consumption of each food during its season of peak availability
- Teach caretakers how to cook and mash vegetables for young infants [carrots, squash, sweet potatoes] and how to feed them to infants
- Teach women how to add carrots, squash, sweet potatoes, etc. to sauces for kini and toh
- Encourage people to buy liver in the market for young children and pregnant women
- Encourage pregnant women to drink milk, eat liver, carrots, mangoes, squash, sebe and guavas
- Teach people that bean and squash leaves are edible
- Teach people about shade drying of tomatoes, red peppers, onion tops

E. Specific recommendations

The following recommendations for specific foods are listed according to season of availability

<u>Season</u>	<u>Food</u>	<u>Recommendations</u>
All year	meat	There is little that can be done to increase the amount of meat in the diet. However, general education to encourage the timely introduction of solid foods to children's diets (4-6 months), will result in the children getting at least whatever meat is available, at an earlier age.
	liver	People should be encouraged to purchase liver on market day and give it to the youngest child (or the two youngest children) in the family, and to the pregnant women to eat.

- fish** People already eat a lot of fish, and they consider it a good food for babies and pregnant women. This can be encouraged, and, as with meat, the introduction of solid foods at 4-6 months (rather than 8-12 months, or later), will improve the health of the young children.
- fish oil** Encourage the use of fish oil as a flavoring in the sauce, when available. Promote it as a food which can protect pregnant women and children from night-blindness. Encourage women to start solids for children at 4-6 months.
- karite** Begin food at 4-6 months
- tomatoes** Tomatoes are a traditional part of the diet in Mali. The primary strategy to increase consumption is to encourage more people to grow their own tomatoes, and to teach people to start solid foods at 4-6 months for infants. Tomatoes could also be promoted as a sauce ingredient for okra and dried baobab leaf powder sauce. Shade drying of tomatoes is also a possibility. Given the labor involved in making tomato juice, it might be promoted as a special food for sick children.
- red peppers** It would be difficult to increase young children's consumption of hot red peppers in sauces. However, if the peppers were dried in the shade, the same amount of pepper (and therefore spiciness) in the sauce would provide more Vitamin A.

Cold
Season
(Dec-Feb)

carrots

Carrots seem to be gaining in popularity, and many people said they were growing carrots this year. If demand were created, people could grow their own carrots and sell the surplus in the market. Also, if commercants knew that people would buy them, carrots could be imported from farther south, and would thus be available for more of the year. Because people seem to like carrots, and don't hold any beliefs about them being bad for you, they should be promoted heavily. The cooking and mashing of carrots, so that young infants can eat them, could be taught as part of the monitrices' nutrition education sessions, or during consultations with individual mothers. Carrots have more Vitamin A when eaten raw, but there is a greater chance that all family members will get to eat some if they are in the sauce, rather than eaten as a treat at the market. Pregnant women could be encouraged to "indulge themselves" with several carrots at each market day.

Hot season
(March-May)

Sweet potatoes

More people could be encouraged to grow orange sweet potatoes in their gardens. Mashed, boiled sweet potatoes can be promoted as a particularly good food for children just starting to eat. If it were put in the sauce more often, the older children would have a better chance of getting some. Currently, most of the sweet potatoes are consumed already cooked, in the weekly market, and eaten before returning home.

onion leaves

If villagers have access to water for gardens, they should be encouraged to grow more onions, and to eat the tops fresh. It should be feasible to teach people to dry onion tops in the shade, since they are available during the hot season, when shade drying works best.

mangoes

Everyone seems to take advantage of this source already. However, women could be taught how to extract the juice from the mangoes, and how to scrape the pulp away from the fibers, so that younger children could still benefit from this source of Vitamin A. Drying of mangoes for later consumption probably will not work, as the pulp would be instantly covered with flies. For the long term,

villagers can be encouraged to plant mango trees and keep them watered. Encourage pregnant and breastfeeding women to eat lots of mangoes.

Rainy season
(June-August)

- fresh milk Women can be encouraged to buy milk every day when it is available, to put milk in the baby's moni or seri, and to drink milk themselves when they are pregnant. One suggestion is to trade a container of millet for a container of milk every day during pregnancy.
- butter If affordable, encourage adding spoonful of butter to infants' porridge, however, better use of money can be made with other foods.
- eggs Small-scale projects to encourage the raising of guinea fowl and chickens could be encouraged, to increase the availability of eggs and lower their price in the market. From the success the monitrice has had in Bangou-Marka, it is clearly possible to overcome people's reluctance to eat eggs. In addition to hard-boiling eggs, they could be added to the children's porridge as a source of protein. Mixing in a raw scrambled egg, which would cook from the heat of the porridge itself, would be a lot easier for the mother than pounding beans or peanuts.
- squash As with eggs, if the monitrice tells people that it is good for them, they seem willing to believe her, and to incorporate it into their diet. Many people in the CARE villages are growing their own squash now, and they especially like the taste. During the initial study, the villagers of Touara said they tried to grow squash in their gardens, but it wouldn't grow there. Since there are many varieties of squash, it should be possible to find some which will grow in this region. Or, if the demand is created, farmers farther south could grow it and sell it in the markets of this region (the way watermelons are grown near Ségou and exported to all parts of the country). The promotion of squash as a garden crop, as well as a rainy season crop for the corn fields, would be feasible. A lot of squash is eaten in Bamako, where many varieties and sizes are available in the market. In addition, boiled, mashed squash could be promoted as an excellent food for babies 4-6 months of age.
- okra Since okra is already eaten widely, the only recommendations to increase its consumption among young children is to start solids at 4-6 months. It might be possible to try shade-drying of okra to

preserve the Vitamin A content. However, okra ripens during the rainy season, when the temperatures are cooler and the sun is not always out. Villagers said that it already takes 4-5 days for the okra to dry in the sun (it is spread out on the roofs of the houses to dry, primarily to keep it away from the animals). In one village, they said they had tried shade drying, but the okra turned black (moldy) and did not taste good in the sauce.

locust bean powder Encourage its consumption by everyone

bean leaves Encourage the growing of beans in the gardens and fields, and teach villagers that the leaves can be eaten in the sauce as well as the beans themselves.

squash leaves Educate people that the leaves of the squash are edible, as well as the squash itself. There were no particular objections to the idea of eating squash leaves, but people expressed surprise when told that the leaves were edible. In Bamako, many people eat squash leaves, so this should be a feasible message to convey.

baobab leaves The primary recommendation would be to dry the baobab leaves in the shade to try to conserve their Vitamin A content. Especially in the regions where dried baobab leaf sauce is the staple, this could increase the intake of Vitamin A. The beliefs that toh is bad for young children will be difficult to overcome, but mothers might be encouraged to give children sauce by itself, as no one seemed to think that baobab leaves themselves were bad for children.

papaya Papaya seems to have the potential to enjoy greater popularity if it were more available. If a demand were created (through promotion of papaya's reputation for helping fight illnesses), papayas could be imported from other parts of the country where they are more plentiful. The price must be lower in order for more people to be able and willing to purchase it.

sebe Should be promoted heavily for all children and for pregnant women. It is inexpensive, available in the market, and can be eaten by everyone. Even young children can drink the juice. Plus, it already has a reputation for helping pregnant women.

After rains
(Sept-Nov)

guavas Promote for pregnant women and young children

VII. INTERPRETATION

The final section of the report presents additional interpretation of some of the causes of malnutrition in Mali⁹, and an approach to attacking this problem through communications that inform and motivate action. Our framework for this discussion is the public health education model, referred to in the international literature as "PRECEDE," which was developed at the Johns Hopkins University School of Hygiene and Public Health in the United States¹⁰.

For any health problem or solution, there are factors that predispose its occurrence, that enable it to happen, and that reinforce its perpetuation. We discuss some of these predisposing, enabling and reinforcing factors here, and how communications (and specifically healthworker interventions) might be able to motivate change. This is offered as a starting point for the Strategy Workshop to be held in Mali in June, 1990.

Our specific recommendations for health worker training and nutrition counseling appear in the draft NCP Training Module *A Field Guide for Identifying Children with Malnutrition* and Tips for Counseling their Parents. This module teaches village health workers to identify children with protein energy malnutrition and kwashiorkor on the basis of physical signs and dialogue with the child's mother (i.e. without weighing or measuring the child). The draft module will be reviewed and refined by the Ministry of Health and participating PVOs in Mali this summer. It should be available for field testing by September.

A. PREDISPOSING FACTORS

Food Availability

Often food is simply not available in sufficient quantity in several regions of Mali. Either the rainfall is inadequate, or it comes at the wrong time, and the crops do not produce as much as they should. In some years, locusts, grasshoppers and birds eat much of the ripe grain before it can be harvested. The health worker cannot control these factors.

Economic factors also play an important role. Many people do not have the basic necessities of life, and do not have a lot of money to spend on food. This means that when people do get more money, there are many competing demands for that money: housing, clothing, firewood, medicine, school fees, etc. The strong extended family system also requires that the more income you have, the wider the network of relatives you are expected to support. Therefore, more income for the husband or wife may not mean more or better food for their children. Again, the health worker cannot control or change these factors.

⁹The interpretations are based not only on the current study, but the first author's previous longitudinal and in-depth research in several regions of Mali.

¹⁰Greer, L., Kreuter, M., Deeds, S. and K. Partridge, 1980. Health Education Planning: A Diagnostic Approach; Palo Alto, Mayfield Pub. Co.

However, the fact that most adult Malians are not malnourished means factors other than food availability, poverty, and the extended family system affect food intake in Mali. It is primarily by understanding cultural norms and attitudes and developing harmonious motivational and informational messages, that the health worker (or other communications agent) exerts an influence.

Knowledge and Attitudes

1. Knowledge about the Children's Dietary Needs v. Attitudes about Food

In Macina, most people are content with their traditional diet of millet and sauce or rice and sauce, as long as they have enough millet or rice to fill themselves up - a goal which most families can afford. In general, people appreciate dumuni duman ("good food") primarily for its good taste, and the pleasure it brings them (nihina), which they feel are wasted on young children. The average person does not make a distinction between dumuni duman (good food) and dumuni nafama (healthy food), and "good food" is culturally relegated to the men, elders and others perceived to have "earned the right to eat it."

While children are prevented from eating "adult food" (primarily millet and rice) too soon as this will make them sick, once they are considered "mature enough" for adult foods, their days of being treated specially are over. They are expected to "follow what (their) preferences are, eating the same thing as the adults", "...Eventually they eat the same things that we eat, toh and fana." One eats food to feel full -- a lot of food is good, and good food tastes good. Food is not further categorized by distinctive properties; as good for different parts of the body; as needed by the body to grow. Therefore, children are not perceived as having any special dietary needs, "rights" or "privileges" once they are weaned from the breast.

Campaigns that promote giving better foods to young children must take this cultural attitude into consideration. Once sensitized that children actually need different foods than adults, it seems that children could be given "healthy" foods if "high prestige, tasty, good" foods were still the prerogative of adults. There are nutritious, even tasty foods available that are not particularly esteemed (including milk, fruits and vegetables). These might not fall into the category of "good food" (mostly meat and fish) that should be "reserved for men and elders," and therefore could be exploited as foods particularly suited to children or pregnant women in general. These same foods could be promoted as "preventative" foods, while more expensive, more highly esteemed and less available foods, such as animal liver, could be promoted as "curative" foods for "night blindness."

2. Knowledge about Night blindness during Pregnancy v. Attitudes about Women's "rights" to eat

Many women simply accept night blindness as a normal part of pregnancy. Since it goes away when the baby is born, they do not bother treating it. At the same time, they regard the "cravings" that they feel for "good foods" (primarily high protein foods, or even carrots, which they regard as special treats) as "indulgences." They occasionally buy themselves grilled chicken, meat or carrots in the market place, but with the feeling that they do not really have a "right" to eat these "treats."

If the women understood that nightblindness is a symptom of a condition that not only harms them, but harms the baby as well, it might motivate them, and actually give them "permission" to openly eat better foods during pregnancy. They are not merely giving in to a "craving," or relieving an unimportant inconvenience, which is how they currently view it.

One approach that might work is to say that:

"night blindness is a sign that the baby inside is "starving" for a particular kind of food and taking it all out of the mother's blood to the point that her eyes become weak at nightfall. The only way for the mother to satisfy this baby's hunger is for her to eat more of the foods herself, foods that she likes to eat such as carrots, milk, etc. The mother will know that the baby is getting enough when she can see well in the dusk again."

3. Attitudes about Prevention and Treatment of Illness

Attitudes about prevention varied greatly between "virgin" villages and those where CARE has had monitrices. The monitrices have apparently succeeded in convincing villagers that prevention of disease is possible, and more effective and less costly than trying to cure an illness once it has struck.

In non-project villages, illness and death are largely attributed only to Allah, evil spirits, or bad luck. Therefore, there is little that can be done to "prevent" disease. Dr. Soumounou said that the villagers understand prevention and protection from spirit-caused illnesses, as evidence by the ubiquitous gris-gris that people wear, but have not yet accepted that actions such as dietary changes can prevent certain illnesses.

In general, non-sensitized villagers do not understand the relationships between their life style and basic health measures, for example:

village hygiene and health: they do not view the goat manure, overflowing latrines, and rotting food as a problem

good nutrition and health: they do not understand that children need to eat solid foods before 12 months of age. In the CARE villages, people at least say that children should start solids around 6 months, and many children between 6 and 12 months of age were

eating some solid foods, even if not enough, or not on a regular basis. In the non-CARE villages, most children under the age of one year were not eating any food, or were eating only unfortified moni or seri.

immunizations: Non-sensitized villagers were aware that they exist, and were available at the nearest Centre de Santé. However, few people took advantage of them, and there was little understanding of their purpose, or how they were supposed to be administered. For example, in Kouï, villagers said they have noticed that measles is no longer a problem in the region, but they attribute it to their village-wide sacrifices and prayers (whether to Allah or a traditional deity was unclear). In Kougodian, women said that immunizations cost 2,000 CFA each (not true), and so were too expensive. In Tougouma (in Monimpe Arrondissement, with no CARE contact at all), women said that they didn't take their children to Monimpebougou for immunizations (a 4 km walk) because they had heard that children got a fever the night of the vaccination. They did not understand the importance of the immunizations, and regarded the slight fever as an illness. In other villages, people said that they were waiting for "the people" (the mobile immunization teams) to return to the village. If the team came, they would take their child for the immunization, but they would not go to the health center on their own.

attitude towards medical care: There seemed to be a general distrust of modern medical care. People in the two Monimpe villages said they either did not take their children to the health center for any problems, or they went once and it didn't work, so they did not go again. People often seemed to expect "miracle cures" of chronic conditions from the modern health centers. If the child didn't get better after one shot, or one bottle of medicine, or one batch of sugar-salt solution, then they decided the whole system didn't work.

4. Treatment vs. Prevention

In the villages still "in formation," while treatment of nightblindness is well established, the concept of prevention has not taken hold. For example, eating goat liver or snake-fish to cure night blindness is well known, and some people even mentioned carrots and Vitamin A capsules. However, the idea that these same foods can be eaten to prevent night blindness, especially among pregnant women, seemed unfamiliar to the villagers. A prevalent attitude seems to be "you don't worry about it until it happens to you." Dettwyler explained the American proverb "If it ain't broke, don't fix it," and Dr. Soumounou said that was precisely the villagers' attitude. In some ways, they even feel that to talk about diseases or disasters is to cause them to happen. For example, you never mention crocodiles when you are out on the river, because it might bring them to your boat. Likewise, you try not to think or talk about night blindness or measles or death in childbirth.

It may be that people are so busy trying to cope with the problems they do have, that they can not worry about problems that haven't occurred. It may be necessary to deal with major concerns of the population before moving on to problems they consider relatively minor, such

as night blindness. Only after they understand the cause of night blindness, and its repercussions for health, and know how easy it is to prevent, will they begin to take actions to prevent it.

The accompaniments of pregnancy, including stomach aches, nausea, vomiting, fatigue, and night blindness, are viewed as normal (not as a sickness). Therefore, people don't see them as something to be treated. The health workers could work on convincing the women that although some of these symptoms can't really be helped (nausea, vomiting), others can (night blindness). For example "You can't do anything about the drought, but you can do _____ to prevent _____." Or, for hygiene, "You can't prevent your child from getting dirty, but you can make sure that his hands are cleaned with soap and water before he eats." The ultimate idea is to convince people that they can change some things, while acknowledging that many of the adverse conditions they face are not under their control.

5. The Need to Explain WHY

The focus group interviews, the small group interviews, and the inter-village women's meeting in Kene suggest that villagers who are practicing healthy behaviors do not have a clear understanding of why these interventions work. There was no discussion, for example, of why clean water was important, of why children needed fortified porridges, or why the villagers should clean up the animal manure in their compounds. In the short run, it is important that villagers change their behaviors, even if it is merely to please their monitrice, or because they understand in a general way that these changes will improve health. In the long run, however, it is also important that villagers begin to understand the underlying reasons for the monitric's suggestions, so that the behaviors will be sustained in the future.

B. ENABLING FACTORS

1. Motivation

The CARE monitric's have been very successful in motivating villagers to take action to improve their living conditions. In some cases, the villagers appear willing to do anything their monitrice tells them to do, and are anxious to continue CARE activities after the monitric's leave. In some villages, the women even have plans to act as rural extension agents, exporting their knowledge to other villages which have not had a monitrice. The levels of motivation, and excitement are high, and people feel that there are some things they can control, which will have a direct impact on their health. They are proud of the improvements they have made to their villages.

Women with some control over resources (garden products, small commerce, milk sales, village technologies) are in a position to purchase or trade for the things that they need. Women without these resources must go through their husbands for all material needs. Hence, two kinds of communication must be developed: Those that speak directly to women who have their own money to spend, and those that speak to men on behalf of women to help them motivate his

contributions to maternal and child nutrition. In villages where women are expected to contribute all the food except the cereal, it may be more difficult to convince the men to buy extra foods for the children, or for their pregnant wives. In villages where men contribute to the "condiments" and already purchase food in the market for their children, they will just need advice on which foods will be most helpful (liver instead of manioc, carrots instead of fried millet cakes). It seems that the husbands' parents also play an influential role in motivating his decisions, and they should not be overlooked as a target audience.

2. The non-perception of child care as a role that women and young girls must fulfill in addition to their other duties

The health care workers could promote the view that child care activities are an important part of the domestic labor, and deserve training and attention. Particularly the idea that there are "better" ways of feeding children, keeping them clean, etc., and that one can learn how to do these things, just as the villagers learned how to keep the well clean, sweep the village, etc.

The problem of women accepting responsibility for the way in which they take care of their children is a very difficult one to address. The messages must be careful not to accuse the women of purposefully harming their children.

3. Food Availability

If the monitrices are mainly suggesting new foods, which might not be available in the village, they might want to try an alternative strategy - focusing instead on feeding practices, rather than new foods (such as mashed carrots, beans in the porridge, etc.). Women need to be taught new ways to feed children with what is already available; otherwise, they will just say "well, that's a good idea (to give the child some new food) but we can't get it here, or we can't afford the money, or it takes too much time." And that will be the end of it.

4. Other Resources

All the villages could benefit from wells, and from better fence-building technology to keep out the goats and sheep. The DAZA garden project should be coordinated with the Vitamin A activities under the health project so that foods with greater nutritional value (whether rich in Vitamin A or not) are promoted. For example, yellow sweet potato varieties should be made available rather than white, and perhaps focus less on potatoes and okra (already grown and appreciated), and more on spinach, kale, turnip greens, leaves of other root plants. The example of cabbage being introduced only last year and already a new favorite sauce ingredient is very encouraging.

C. REINFORCING FACTORS

1. Empowerment

A striking finding in the non-CARE villages was that women seemed to be waiting for someone to tell them what to do. We heard,

"the chief didn't tell us to go," or,

"my husband didn't say that I should," or,

"no one told us to do it."

This reflects the fact that these women, in reality, have very little control over their lives, and are used to having to ask permission or be told to do something before they do it, especially with regard to anything new. Women do not have very much control over their lives - their husbands are selected for them when they are young children, they are not allowed to choose when they become pregnant, or how many children they have, and their days are filled with an endless round of heavy manual labor. The children belong to the father's patrilineage, and many decisions about the children are made by the father. For example, even though many men have no idea what their children eat on a daily basis, it is the father who usually decides when the baby should be weaned. The mother has no choice in this matter. Women do not feel free to make decisions on their own, either for their own lives, or concerning the lives of their children. They feel there is little they can do to improve their lives.

One of the most obvious differences that we observed between CARE villages and non-participating villages is that the women who know the monitrices are convinced that they can unite and make decisions themselves that lead to positive results.

2. Rural exodus

Due to economic conditions in the villages, many men leave in search of work outside. Many women find themselves to be the head of the household under these conditions. And the responsibility of feeding the family seems to be falling more and more on the woman's shoulders. Hence, some of the attitudes of helplessness, associated with always waiting to be told what to do, are starting to change through necessity. On the positive front, efforts are mounting towards developing functional literacy and income generating activities for women. These activities seem necessary if women are to feel more in control of their lives. This positive attitude seems at the foundation of the "positive health behaviors" observed in the most successful villages that CARE has trained.

3. Sources of Advice

People in general seem more willing to listen to health workers for advice, rather than the "old women" who were traditionally the sources of information. But the monitrices most important job may be serving as role models, given that they are young, educated women, most of whom are unmarried, who clearly think for themselves, get themselves around (on their mopeds) and make decisions.

Conclusions

In conclusion, in the non-CARE villages, not only is there a much lower level of knowledge (about immunization, sugar-salt solution, fortified infant foods, and so on), but there is a much lower level of motivation in general. People feel that they have no control over many aspects of their lives, and they are not aware that they can take actions to improve conditions in their villages. People are generally distrustful of modern medical care. They do not make any distinctions between "good foods" and "healthy foods," they do not understand the importance of starting solid foods on time, and they are not convinced that prevention is possible for many of their illnesses. For some illnesses, they think that nothing can be done, and they do not even seek traditional cures.

A two-part communication strategy consisting of platform building and knowledge extension is recommended. While the project can develop both approaches (and supporting materials) simultaneously, care must be taken to not rush in with the advanced strategy before the solid foundation is built. For the "CARE villages" (or other villages with successful PVO or government health programs), it will simply be a matter of adding "another way to make life better" now that everyone is immunized, drinks clean water, cleans their compounds, etc. In the non-CARE villages, (which can be taken as fairly representative of other villages not currently participating in PVO health programs or in contact with government health centers), before specific nutrition messages can be successfully promoted, it may be necessary to achieve a certain level of general sensitization, motivation and feeling of control.

VIII. RECOMMENDATIONS

A. Building the Platform: Step One

This section discusses how a health worker can begin to establish trust in a new village, and demonstrate the importance of good nutrition for children. In villages that have not been sensitized, it will probably be more effective to think of malnutrition as an "illness," and the good food that you suggest as a "cure," rather than trying to start off with the more difficult concept of prevention. The suggestions here are very preliminary, and are explained in greater detail in the NCP Guide, *Identifying Children with Malnutrition*.

While general village level education activities will benefit all the children, in many cases it may be most effective to begin with individual mothers of malnourished children. Once a child has been identified as malnourished, the health worker should visit the families of these children individually and talk with both parents about the necessity of making sure that these children get more food to eat, especially foods which the healthworker knows to be high in calories and protein. For example, fresh cows' milk is the best protein source for children with kwashiorkor, and it can be easily added to the child's *moni* or *seri*.

Another reason to start with these families is that one example of improvement in a sick child's condition after changing his diet can do more to convince people that "food can be medicine" than many hours of lectures and demonstrations. If you can be successful with one or two children in each village, people will be more willing to try your suggestions with their own children. The concept of "protection and prevention" is well-established in traditional Bambara belief systems, so it should not be impossible to move from "curing children of these diseases with good foods" to "preventing these diseases with good foods." It probably makes more sense to talk about "good food" as curative or preventative medicine than to try (at this point) to explain the concepts of protein and calories and nutrient requirements (or even the "three food groups").

B. Developing and Delivering Messages: Step Two

After these families have been visited, the "nutrition education" component of the project could begin with some general messages about nutrition for children at meetings with small groups of women. It is not necessary for this to be a formal, village-wide meeting. Whenever a group of 4 or 5 women is gathered together -for pounding millet, for washing clothes, for making shea butter -the health worker can sit down and talk about these topics. Or whenever the health worker visits with a family at meal time, she can talk about the importance of good nutrition for the younger children. It is important that women understand that these suggestions can be implemented immediately, on a daily basis; that they are not only for special occasions, involving huge amounts of time and work.

The village women should be involved in discussing the meaning and implications of each message, how it might be implemented, what problems it poses for the mother, etc. Other messages should be developed by the health workers, in conjunction with the women of each community.

Always stress the benefits to the mother, the family, and the community, of healthy children. For example, a well-nourished child doesn't get sick as often as a malnourished children, and food is cheaper than medicine. A well-nourished child is happier and more independent of his mother, so she can get her work done. A well-nourished child walks earlier than a malnourished one, so he doesn't have to be carried as long on his mother's back. Finally, a well-nourished child grows up to be a smart child, who can help his parents better.

In addition to targeting the women, health workers may wish to expand their nutrition communication efforts to include other sectors of the community. For example, programs could be targeted to adult men, whose cooperation will be necessary in purchasing food especially for children, and in making sure that the younger children get an adequate share of the meat, fish, etc. available to the family. Additional programs could be targeted to young girls (and boys) between the ages of 6 and 14 years. Often, young girls provide a major proportion of child care in the village, especially during shea-processing and harvest times. They also may be the only ones with enough time to come to demonstrations and "lectures" as well as the only caretakers with enough time to sit and feed small babies by hand. In addition, if you can instill good nutrition habits in the young girls, these habits will carry over into their own experience as mothers in years to come.

C. Preliminary Strategy

The research team prepared the following preliminary strategy addressing maternal and infant nutrition, focussed on increasing consumption of Vitamin A. It identifies specific behaviors, and targets specific groups of people to perform these behaviors, rather than launching general messages directed at everybody. This strategy is followed by the results of the preliminary message testing done in Macina, and then additional messages that should be explored during the June workshop.

Target Groups	Proposed Actions	Principal Themes	Media Channels
1. Students	<ul style="list-style-type: none"> Learn to make vegetable purées with available foods (short term). Grow Vitamin A vegetables in garden, and cook these. Share information with other family members. Wash hands with soap and water before and after eating, and after using toilet. Wash dishes. 	<p>The good older sibling takes good care of his/her younger sibling.</p> <p>The good sibling uses his/her spoon to ward off danger (picture of kid defending little brother from "monster" of malnutrition)</p>	<p>Schools and Coranic Schools</p> <p>Village celebrations (masked dances)</p> <p>Youth organizations, scouts</p>
2. Pregnant Women	<ul style="list-style-type: none"> Buy and consume milk, eggs, liver and fruits. Buy milk every day. 	<p>Your best friend during pregnancy is the "corner Fulani." The most profitable daily exchange is the one you make for milk. Fresh milk is a good remedy for heartburn.</p>	<p>Health workers</p> <p>Health committees</p> <p>Village celebrations</p> <p>Literacy centers</p>
3. Mothers	<ul style="list-style-type: none"> Learn to make vegetable purées, add vegies to sauce. Continue breastfeeding through 2 years. The mother must serve the child who can not feed himself. 	<p>Patience and Courage.</p> <p>Good Mothers are like "pigeons." The beak of the mother is the wings of the baby bird.</p>	
4. Grandmothers	<ul style="list-style-type: none"> Grow Vitamin A rich vegetables. Make purées 	<p>Children guide the ploughs. If your child can't, you must do it yourself. With this simple gesture, you guaranty your future.</p> <p>What can you do to help your wife?</p>	<p>Inter-village meetings</p>
5. Men	<ul style="list-style-type: none"> Buy a piece of liver for your child at the market Give your wife an extra bowl of millet that she can exchange for milk. 		<p>Radio</p> <p>Literacy centers</p> <p>Market posters</p>

D. Messages that appeared to be the most promising from the focus group pretesting

- **Prevention is better than cure**

During the education sessions, the health workers can talk about how much easier and cheaper it is to prevent illness, since medicine is expensive, and doctors are difficult to get to, or not available at all. "One way to prevent illness is to get your child immunized, another way is to make sure that s/he gets lots of healthy food to eat...."

- **Healthy foods prevent sickness**

During the education session, the health workers can talk about how the body uses food for strength, growth, and protection from illnesses. This is where they could incorporate the proverbs:

"It makes bones strong; it makes life restful; it gives force because you can work a lot; it prevents illness."

A be kolo sigi; a be ni lafia; a be fanga di walisa ka barake kosobe; a be bana kunbe.

and

"If you take care of yourself, you'll age well."

Janto yerela, koro cogo ka nyi.

- **These foods are healthy foods**

During the education sessions, the health workers can begin with the distinction between dumuni duman and dumuni nafama, and then focus on whatever dumuni nafama is available in their region, in that season, as well as general messages about fortifying the porridge with pounded soybeans, niebe beans, or peanuts. Focus on the foods high in protein and Vitamin A to which the people have access. This part of the program will have to be adapted to fit local conditions and season of the year.

These first three messages could be presented by themselves, in order, with appropriate accompanying images. For example, they can be printed on small posters, or on cards, or be the "stickers" that women get for attending the nutrition education sessions. The third message, about which foods are dumuni nafama, is particularly easy to visualize, with pictures of the different foods given out during the appropriate season.

- **Vegetables conserve their richness when dried in the shade.**

This message has potential, since many people agreed that shade-dried foods looked more natural and had better taste than sun-dried foods. However, it did not go over well as stated.

One suggestion for an analogy is to clothes, which keep their color longer if dried in the shade. The health workers might want to start with one food - peppers, tomatoes, or another hot-season garden product, on an experimental basis. Drying okra in the shade probably will not work, as okra is a rainy season product, and takes many days to dry in the already.

E. Additional Recommended Messages for future pretesting

1. Breast milk is the best food for babies, but babies need to start other foods by 4-6 months.
2. Babies, even without teeth, can eat any food which is soft - moni and seri, eggs, cow and goat milk, meat and fish, fruit, fruit juice, and vegetables. Foods can be cooked and pounded to make them soft. [Sugar, milk, and lemon juice can be added to the moni and seri, as well as pounded peanuts or bean powder - to make it stronger.]
3. Babies must be fed - the mother (or other caretaker) must put the food in the baby's mouth, and teach the baby how to eat.
4. By 6-8 months, the baby should be eating several times a day, every day. Offer a variety of foods, and encourage the baby to eat.
5. By 12 months, the baby should be eating all the adult staples (kini and toh), with extra sauce and extra meat, fish, eggs, or milk.
6. Any extra good foods that the mother can afford for the baby and next oldest child will help them to be strong and healthy. Good foods (dumuni duman or dumuni nafama) include: meat, liver, fish, cow or goat milk, beans, peanuts, baobab leaf sauce, peanut butter sauce, chicken or guinea fowl eggs.
7. Toubab foods, especially bread, potatoes, and macaroni, are not better for children than rice and millet. If the mother has money to buy the child a treat in the market, it should be meat or liver or fish or milk or bean cakes (sho fru-fru) - not macaroni or cakes.

Manioc has no nutritional value, and should not be fed to children. Also, soumbala is much better, nutritionally, than Cube Maggi, which is, in turn, better than "white" Cube Maggi [mono-sodium glutamate crystals]. Encourage the use of soumbala over Cube Maggi or "white" Cube Maggi.

8. Good foods make the child healthy, strong, and smart. Therefore, the youngest child should get the best foods available to the family, because he needs it to be strong and healthy - it makes more of a difference to the child. [This is an important, but difficult idea to teach, because in some areas people think only the adults, or only the adult men, deserve the best food. It is important that people understand that it is not a matter of deserving good food, but of needing it.]
9. Children must be encouraged or even forced to eat food - they are not old enough to decide for themselves how much to eat. The mother must supervise when children are eating and make sure that they get enough to eat. This is especially important for sick children, who need to eat more food, rather than less food, even though they don't want to.
10. Give the mothers hope that they can make a difference - that by giving their children good food to eat, they can have an impact on the child's health and survival.



IX. MEDIA

Media recommendations are divided into "Educational Supports" (which will be items that health agents use in the course of counseling, or to leave with village health committees upon their departure) and Mass Media.

A. Educational Supports

Cards or Posters

In the past, some of the monitrices have used colorful little posters showing ORS preparation as "certificates of participation," giving one to each woman who was able to correctly describe the proper preparation of ORS and when to use it. They said women wanted the posters, and they used them as a reward. Of course, the poster is then also available for the women to refer to when they need the information. The only problem with this is the posters are flimsy and don't last very long.

Similar results could be obtained by handing out laminated cards. These could be small, and printed on card stock, and ideally laminated, or printed on plastic so they will last for a while. They could be printed front and back with color photos or drawings including such images as good sources of Vitamin A, infants being fed by their mothers or by older children, happy children eating Vitamin A rich foods, gardens where carrots and squash are growing, mothers preparing fortified porridge, mothers cooking and mashing carrots for the baby, etc. Information could be included such as the symptoms of dumuni-desc-bana, information about how easy it is to prevent night blindness, when children should start solids, how to fortify porridge, etc.

Probably only one or two related messages should be included on each card - one on each side, perhaps. The cards could be used in conjunction with lectures, causeries and cooking demonstrations, and then could be sent home with each participant.

"Collect all ten!" could be the rallying cry. Perhaps these could be coordinated with the calendar of available foods. "It's March - March is mango month - attend the demonstration and pick up your own mango card!"

Because of the paucity of toys, printed materials, photos, and other sources of entertainment in the villages, we predict that children will be very interested in these cards, and will play with them, talk about them, and distribute them widely. Repeated exposure to the ideas, and the foods pictured, will help spread the messages.

Gris-gris

Traditionally in Mali, infants and young children wear "gris-gris" (gree-grees), little amulets worn on strings around the wrist, neck, or abdomen, which help protect them various illnesses and/or evil spirits. Originally, these contained magical herbs and bits of rabbit fur, etc. Since the spread of Islam, they are more likely to contain Koranic verses written on paper, or a combination of traditional and Koranic ingredients. Children also wear necklaces and bracelets just for decoration.

CARE/Bamako suggested that we try handing out small plastic icons, perforated for adding to the gris-gris string, at the conclusion of a lesson or cooking demonstration (again, perhaps in conjunction with a monthly emphasis on one food rich in Vitamin A). For example, one might show carrots, one could be mangoes, one with green leaves, eggs, etc. These could be added to the child's gris-gris as a constant reminder to the mother that children need to eat these foods to protect them from surofeeyen (night blindness) and/or from dumuni-dese-bana (malnutrition).

As with the laminated cards, these little "goodies" could be used as an incentive to get women to attend the sessions, and if women actually put them on the children, then other people (even in other villages) will see them also, ask about them, be reminded daily about them, etc. The main hesitation with this idea is that people need to understand that the children have to eat these foods, too, that the icons don't work by themselves via sympathetic magic.

Small scale cooking demonstrations (i.e. Not major village events)

Show women how to add Vitamin A rich foods to their sauces, or how to prepare special foods just for the infants and toddlers. The monitrices need to expand beyond carrots, especially during times of the year or areas of the region where carrots are not available. The monitrices have done a good job of conveying the message that carrots cure night blindness, but carrots are not always available. Women should be encouraged to make one regular sauce, and then take a small portion of it and add the new ingredient (carrots, green leaves, etc.). That way the family can try the new food, but still have the traditional sauce available in case someone doesn't like it prepared the new way. If the men were included in these sessions, and allowed to taste the new foods, they might be more willing to give their wives permission to experiment, and/or to buy the extra ingredients.

Gardening demonstrations

If the project decides to include messages promoting the raising of Vitamin A rich foods in village gardens, then they will need to incorporate gardening demonstrations into their health programs, or develop more linkages between the health and garden projects. One possible source of technical consultants for this aspect of the project is the farmers who grow vegetable crops in Bamako for sale in the local markets.

These men, most of whom are ethnically Senuofo, are experts in the technical aspects of how to grow carrots, nporon, squash, tomatoes, etc., in Mali. They grow phenomenal quantities of produce on very small plots of land, all year round. (Daraman Coulibaly, whose garden is directly across Route de Koulikoro from the Chinese Embassy, in Bamako, is the most knowledgeable/successful of these gardeners). It would make sense to bring in local experts such as Mr. Coulibaly to teach villagers how to grow Vitamin A rich foods. I have no idea if this is feasible, but thought it worth mentioning.

B. Mass Media

Finding a "less expensive" substitute for an educated, self-assured, monitrice might not be possible, or desirable. However, mass media might be used to extend the effectiveness of health agents, to give them advice, and to create interest in their messages.

Television or Radio

A character might be created based on the model provided by the "CARF" monitrice. This character might appear on regular television and radio broadcasts, and village health agents would be trained to promote listening and discussion of the broadcasts. It is not suggested that the character "deliver messages," but that a fictional story is created about her life, the villages that she visits, with different problems happening weekly that she has to resolve. Obviously, the important health messages would be delivered as part of the story.

Radio also seems like a promising avenue for communicating with men. Announcements need to be in Bambara, and broadcast as "spots" during the preferred programs, such as the 8-10 am show, the reading of the newspaper in Bambara (perhaps a regular column on rural food and health), and the programs "Rural World" and "Traditional Medicine". Perhaps the traditional medicine program could capitalize on the fact that the traditional cure for night blindness has been shown to be effective. Health agents could incorporate regular radio programs into their meetings with the women, leading a discussion of that week's broadcast when they get everyone together.

Role-playing/skits

Puppet theater, especially among the Bozo, and other forms of dramatic entertainment have a long history in Mali. The first symptom of Vitamin A deficiency, night blindness, would be easy to characterize by an actor. Malians, who share a "slap-stick" sense of humor, would no doubt be amused by someone portraying a person with night blindness. However, underlying that amusement is a very real concern about the disease, and a fear of being blind.

One idea for a skit would involve a group of women, one of whom has night blindness. One of the women in a focus-group interview said with glee that she once accidentally hit her husband on the head with a calabash when she had night blindness, and the other women in the group

thought it was hysterically funny. That incident could be incorporated into a skit. Perhaps one of the other women could then say that she had heard that eating certain foods both cures and prevents night blindness. The women can then demonstrate how the food is prepared, and the afflicted woman can try it. "Several days/weeks later" the woman can be shown recovering from night blindness. Perhaps another woman in the group could be portrayed as being pregnant, and she could conclude that she will begin eating more of these foods in order to prevent night blindness during pregnancy. Alternatively, a young child could be the victim, though it might be harder to get a little child to pretend he couldn't see very well.

A skit like this would not only convey the symptoms and cause/cure of night blindness, but would also demonstrate the utility of telling other people about your problems and discussing possible solutions. Sharing of information about how to deal with problems, based on personal experience or knowledge learned in other ways, is not a traditional method of handling problems. So a skit in which women bring up their problems, discuss their worries, and talk about different solutions, might get people thinking about this type of cooperative problem-solving, and overcome their reticence about admitting to their friends and neighbors that they have problems.

Slide shows

Slide shows for village audiences are not recommended for several reasons. Each monitrice is responsible for six villages. They live in one village and travel to the others 1-2 times per week, by mobyette. They do not normally work at night, except in the village where they live, and during the harvest, when the villagers are out in the fields all day.

Officially, the monitricies are not allowed to work at night, and are not supposed to be out on their mobyettes after dark. Therefore, it will be difficult for them to show slides to the villagers. Also, considering the condition of the roads ("tracks" is a better term) in the project area, slide projectors will not last very long if they are routinely transported on the back of a mobyette. CARE/Macina personnel also feel that a slide show once or twice a year will not have the necessary impact. They prefer to see Vitamin A messages incorporated into the daily, ongoing health activities of the monitricies, which include lectures and cooking demonstrations, but also a lot of one-on-one or small group counseling sessions and informal chatting with the women.

Slide shows could be used for teaching the monitricies and local health personnel about Vitamin A deficiency. Or, videos or slides might be taken during role plays and skits, and then shown as a special event (at an intervillage reunion).

APPENDIX A

APPENDIX A

THE COMMUNICATION FOR VITAMIN A PROJECT IN MALI "CVA"

The Academy for Educational Development (AED) is the primary contractor for the A.I.D./W (ST/N) Communication and Social Marketing Field Support Project (DAN-5113-Z-00-7031-00), known as the Nutrition Communication Project (NCP). AED provides technical assistance to USAID Missions and collaborating institutions in developing nutrition education and communication programs (referred to as "IEC," information, education and communication) for priority nutrition problems selected in country.

AED has worked closely with the Nutrition Section of the Division of Family Health since October, 1988, to develop a communications strategy for improving infant and maternal nutrition in Mali. The strategy, referred to as the "Mali Nutrition Communication Project," includes two major components:

1. Improving general maternal nutrition and infant feeding in Bamako and Koulikoro, the zones included in the Integrated Family Health Project (IFAHS) funded by USAID/Mali;
2. Improving Vitamin A nutrition in selected regions of the country.

The first component of the project has been approved by the DSF and is included in the 1990 workplan. Local funding was released for project activities commencing in May. AED received funds from USAID/Mali (PIO/T No. 698-0421.88-3-90029) to assist in the development of this component of the Mali Nutrition Communication Project.

AED also received funding from the A.I.D. Office of Nutrition to support activities related to Improving Vitamin-A rich food consumption in the Sahel (PIO/T 936-5113-8361130) and from the Africa Bureau for communications research activities in specified priority countries (including Mali). With this central support, AED developed the Mali "Communication for Vitamin A (CVA)" project in collaboration with the Nutrition Section of the DSF, and two other AID/W funded projects (CARE Macina Child Survival Project and the VITAP project of Helen Keller International).

The formative research phase of the CVA project was initially limited to the region of Ségou, given the extent of environmentally aggravated Vitamin A deficiency there and the ongoing nutrition education efforts of CARE, AFRICARE and the WHO/UNICEF Joint Nutrition Support Project. The Nutrition Section of the MSP and

USAID/Mali have agreed that it would be useful to also test the efficacy of nutrition education materials in a different environmental zone where vegetable production is more widespread, though current consumption practices still result in Vitamin A deficiency among vulnerable segments of the population. With this rationale, the World Vision International Koutiala Project site and staff have been invited to participate in the remaining project phases: strategic planning, pre-testing, implementation and evaluation.

Representatives from the collaborating institutions assisted in developing the current design of CVA, which appears below.

Phase I: Formative Research

a. Community research (Completed in March, 1990)

Rapid Ethnographic Assessment (including community observation, focus group and individual interviews) as well as market survey and household consumption studies will be used to gain in-depth insight into the factors affecting consumption of vitamin A-rich foods and infant feeding at the community level in Macina. As village health monitors (monitrices) will be one "channel" for communications, CARE and regional health staff training needs will be assessed during this activity.

b. Strategic planning (Workshop Dates: June 18 - 22)

The results of the formative research will be used to develop a strategy linking interpersonal communications delivered by village health monitors with village level "mass media," (masked dancers, slide shows, market posters, etc.). The strategy will include:

- Definition of the target behaviors (e.g. shade drying of vitamin A source foods; preparation of vitamin A-rich sauces; feeding weaning age children small, identifiable portions of particular foods; provision of money or ingredients to women for preparation of suggested recipes, etc.);
- Identification of population segments for the target behaviors and modes of communicating (e.g. young men - radio; older men - village council meetings; young women - market posters, health monitors; child-to-child - school coloring books, Koranic teachers)
- Development of themes, messages and media; and,
- Creation of a communications campaign implementation plan. [May - June, 1990];

c. Materials development and production

The project will develop, pre-test and produce IEC materials (e.g. flip charts or counseling cards, dramatic scripts, slides, audio cassettes or posters). [June - September, 1990];

The first round of on-site pretesting will immediately follow the workshop in Bamako, tentatively scheduled as:

Macine	June 25-26
Koutiala	June 27-28
Dioro	June 29-30

Phase II: Implementation

NB: The KAP study baseline will occur prior to training -- tentatively scheduled for September - October, 1990.

d. Training

PVO village health monitors, DSF regional personnel as well as local health staff (pending collaboration in the project) will be trained in the objectives of the CVA program; the role played by health personnel in affecting change in the targeted behaviors; and interpretation and use of the IEC materials.

Following training, health personnel should be able to lead village education sessions, organize market day "promotions", and conduct special events such as community projection of slides, dance and song contests or skits.

Staff identified as "supervisors" will be given additional training in periodic communications monitoring techniques as part of the evaluation plan.

[October - November, 1990];

e. Pilot Test Implementation [October, 1990 - October, 1991]

It is expected that all participating PVOs will integrate project materials and approaches into ongoing health and nutrition activities according to a plan that will be developed collaboratively to respect the program objectives, work load and calendar of each PVO.

As the efficacy of these educational materials is not known, it is imperative that efforts are made to measure the added value, if any, they bring to current Child

Health Project activities. All agencies must insure that villages identified as "intervention" areas receive the CVA interventions, and that those identified "non-intervention" areas receive no CVA interventions, to the extent that this is possible. (The final evaluation will attempt to account for diffusion through word-of-mouth at regional markets and other indigenous social networks.)

In addition, any organized Vitamin A-related interventions, such as capsule distribution, must be documented during the project period [October 1990 - October 1991).

Phase III: Evaluation

A baseline (September - October 1990) and follow-up (October 1991) KAP (Knowledge, Attitudes and Practices) survey will be used to assess changes in the targeted behaviors, attitudes and beliefs. Both waves will be implemented in up to 6 villages per project site (Macina, Dioro, Koutiala) receiving the IEC intervention and 3 villages per site matched for socioeconomic and environmental factors that are not exposed to the IEC campaign. The suggested total sample size is 600 households (200 per site, depending upon availability of households with weaning-age children).

OUTCOMES:

The MSP will integrate project materials and approaches into ongoing health and nutrition activities, following their test and refinement during this pilot phase. Ongoing supervision of staff using CVA materials will be integrated into regular supervisory activities of the MSP and collaborating PVOs. Additional technical assistance through NCP is not anticipated, though PVOs may request advice from the MSP/IFAHS advisor for IEC.

85

APPENDIX B

Reactions to Messages and Proverbs¹

The responses of each village are listed in the order that the focus groups was done (e.g. Niga first, Dioumediala second, etc.). The village is indicated in parentheses before its section with N = Niga, D = Dioumediala, F/w = Folomana women, F/m = Folomana men, B/m = Ke Bozo men, B/w = Ke Bozo women, W/m = Wella men, W/w = Wella women, K/m = Kouï men, K/w = Kouï women, X = Koungodian men.

Message #1 Prevention is better than cure.

Bana kunbe ka fisa ni bana furake.

Responses: (N) Yes, this is true, because it costs less.

"Knowing the time to run is better than having strong legs."
Boli kuma don, ka fisan sen kadi ye.

(D) Yes, prevention is a lot cheaper.

(F/w) Yes, this is true, and the best way to say it.

(F/m) Yes, because treatment costs more and its easier to stop something that is coming than to try to fight it once it's already there.

"Thing coming, go back or go away, vautmieux que burn, comes, center of town." (literal translation into English and French).

Ren nato lasegikadi, ka teme a genni n'a doni dugukono.

"If you hear someone is lucky, you can say 'good things happen to him'."
(That is, he has some thing which makes him lucky).

Ni ya me joni kun kadi, i ba fo sababunyuman.

"You can uproot a little tree, but if the tree is old, you won't like to do it."

I be re ka jiri do fitini bo, n'a korola i be t'a fe.

(B/m) It's true because curing is more expensive than prevention.

¹Ms. Kerotimi Keregna, a Malian student at Texas A&M, assisted in reconstructing these quotations. It is clear that written Bambara is so little used (even by our highly trained researchers) that it was difficult to capture an exact rendition of what was said. The low level of alphabetization also has implications for the utility of producing printed materials in Bambara.

"If you take care of yourself, you'll age well."

Janto yerela, koro cogo ka nyi.

"If something wants to swallow you, you don't need to get close to its tongue." (Don't allow yourself to come too close to danger).

Fenmin ba fe k'i kouni, i ka na se a nen ma.

(B/w) True, and how we would say it ourselves.

(W/m) True, because prevention is easier.

"Sooner is better than later."

Kelen ka fisa ni ble ye. [Note: this makes no sense. The regular way to say this in Bambara is:

Sisan ka fisa ni kofe.]

(W/w) True.

(K/m) True, because it's easier to prevent than to cure.

"Watch dog! Does something in there."

Shu wulu! Mangan ni culo lankolo te. [Note: informant in Texas could make no sense out of this, but it does not say "A trapped dog who is barking won't be heard by a deaf bitch."]

"If you take someone to the door of the entry room and show them where the kitchen is, they will go there to find warmth."

Ni ye bulon da yira mogola, n'atemenka ka t'aa gasola, a na futeni soro yen.

[Literal translation, "If you show someone the entry room, they depart by jumping over, to have the heat."] Figurative meaning, "If you tell someone what they need to do, in order to get something they want, then they will go do it, because it is the easier way." Likewise, prevention is easier than curing an illness. If you want to be healthy, you will prevent illness.

(K/w) OK.

(X) True, because prevention can avoid all problems, for example, measles (reference to vaccination program - PEV).

Message #2 Good food prevents sickness.

Dumuni duman be bana kunbe.

Responses: (N) Yes, this is true, it gives you force to work.

"It makes bones strong; it makes life restful; it gives force because you can work a lot; it prevents illness."

A be kolo sigi; a be ni lafia; a be fanga di walisa ka barake kosobe; a be bana kunbe.

(D) Yes, they know about dumuni nafama and how it can prevent sickness.

(F/w) Yes, this is true.

(F/m) Yes, good food helps. Someone who takes care of his body has few illnesses.

"His body is good, his sicknesses are few, it (good food) gives strength to a person."

A farikolola kanyi, a banamise ka dogo, a be fanga di mogoma.

(B/m) True.

"It makes life pleasurable/happy."

A be ni hinne. [NOTE: hinne or lahinne means "pleasure", not "pity" as it was translated into French.]

(B/w) True, and the Bozo themselves say:

"To prolong the life of a sick person, give him good food."

Bana la jere ko nyuman be banabato si caya. [Note:

In Bambara, this actually says "Sickness together makes the sick person have a long life." Clearly something got lost in translation. To say the proverb in Bambara, you would have to say something like:

Dumuni nyuman la jere ko be banabato si caya.]

(W/m) True, because poor food provokes sickness.

"Old food makes a sickness worse."

Dumuni jugu be bana juguya. Dumuni jugu is food that is cooked one day and eaten the next (unrefrigerated leftovers).

"If you take care of yourself, you'll age well."

Janto yerela, koro cogo ka nyi. [Note: this proverb was also given in another village, in answer to message #1.]

(W/w) True.

(K/m) True, because good food protects the body.

"If the mouse's heart is bad, the soubala must have a strong odor (or the mouse can't find it)."

Nginye ne son ka jugu, kasa be de sumbala la.

[Figurative meaning: If you are sickly, you can't do very much.]

(K/w) OK.

(X) True, because it gives force. Even those who grow older will remain strong. If you eat meat and milk you're going to be sick less often.

Message #3 Healthy food prevents sickness.

Dumuni nafama be bana kunbe.

Responses: (N) Yes, this is true, it allows you to grow old gracefully.

"It makes the skin look good; it prevents illness, it lets you age in a good condition."

A be fari noro; a be bana kunbe; a be angoro cogo nye.

(D) No answer.

(F/w) Yes, this is true.

(F/m) Yes, this is true. Healthy foods protect the body, it won't be beaten by anybody. Healthy food refreshes or rejuvenates the body, takes care of the body. You can see it when you look at the person. The happiness isn't hidden in the body.

"Your life is restful, a person's body is happy, it isn't a little body."

I ni be lafia, a be donfarila damu te dogo farikolola.

(B/m) Not asked?

(B/w) True, but they have no money to buy healthy food. Eating fish can prevent night blindness.

"Whoever can see the fish flopping around does not suffer from night blindness."

Ni mogo o mogo be jege pipirito, a ka ca ala fe surofi'en te amine.

(W/m) Not asked?

(W/w) True.

(K/m) True, because it ends up being in the bones and in the flesh.

"The millet grain pushes out the millet stalk."

Gno kise be bo gno kalala. "From the humble acorn grows the mighty oak."

(K/w) OK.

(X) True, because it brings health.

Message #4 Fruits and vegetables are healthy foods.
Yiri-den ani nako-den be dumuni nafama.

Responses: (N) Yes, because it gives a lot of blood.

"It gives a lot of blood."
A be joli caya. A be joli chama.

(D) Yes, these are the "protective" foods.

(F/w) Yes, this is true.

(F/m) Not asked.

(B/m) True, because carrots are good for your eyes and the skin of the mango is good for jaundice. Lettuce and tomatoes are good for your guts.

(B/w) True, and the only way to say it.

(W/m) True, because the basis for all their traditional medicine is leaves. For example, they use all parts of the ronier palm, and it gives them forces so they can work better.

(W/w) True.

(K/m) True, because they give health.

"If you know something, something good will happen."
Ma dongonfe, ka nyi niige ghuman ye.

(K/w) Did not understand very well.

(X) True.

"They (fruits and vegetables) look good; they make you happy."
U bi nye; u bi nusoja.

92

Message #5 Eggs, meat, and liver are healthy foods.

Shea-fan ani kami-fan, ani sogo, ani binye be dumuni nafama.

Responses: (N) Not asked.

(D) Yes, these are the "construction" foods.

(F/w) Not asked (F/m) Not asked.

(B/m) True because guinea fowl eggs gives you force, health, and treat jaundice.

(B/w) Not asked (W/m) Not asked

(W/w) Did not understand, had to be explained in some detail.

(K/m) Not asked (K/w) Not asked.

(X) Not asked

Message #6 Vegetables conserve their richness when dried in the shade.

Responses: (N) Yes, because they are good and heavy if dried in the shade, compared to those dried in the sun.

"They are good; they are heavy."

A ka di; a ka giri.

(D) Sun drying is faster. Shade drying is cleaner from dust and animals, but they've never heard of drying food in the shade before.

(F/w) Yes, they keep their natural color and appearance of freshness, and their viscous state (okra).

(F/m) OK, but certain foods can only be dried in the sun (okra and baobab leaves). Shade drying is good, better than sun drying. The value is not destroyed as much in the shade.

Proverb against shade drying: "Broiling is much faster than boiling".
Jennili ka teli ni tobili ye.

Proverbs for shade drying: "Patience makes the feathers come out from a chicken egg."

Munyu de be shi bo, she kilila.

Also: "If rain ruins something, it is better than if it's ruined by the sun."
Ni sanji ye fenmi tien, o kanyi tle ka fen tienlenye.

(B/m) Yes, because heat destroys the force and the taste.

"The sun destroys the nourishing part."
Tle be u nafa ban.

(B/w) This message would go better if you made a comparison to clothes dried in the sun which fade and lose their color.

(W/m) True, because shade is preferred over sun.

"Shade is better for people than the sun."
Suma de kadi maye kateme tle la.

"Something dried in the shade is better than if it were dried in the sun."
Fenmi jaara sumu la, o ka di a jalen tlela. [Note: jaara and jalen both mean "dried" and are interchangeable.]

(W/w) Did not understand, had to be explained because they have never heard of the idea.

(K/m) True, because heat diminishes force.

(X) We haven't really observed this, but we know that the marabouts dry certain medical plants in the shade, and this increases their force.

"Makes the strength 'come out'."
Nafa ka bo.

"If it's in the shade, the pleasure stays in the mouth."
Ni a be sumula, hinne be to a da.

"The sun takes out all the water."
Tle b'a ji sama ka ban. [Note: seems to be an argument against shade drying, as only the sun can really dry the food.]

Message #7 A pregnant woman needs to eat a richer diet than her ordinary diet.

Responses: (N) Yes, because they are different.

A person who is one and a person who is two (a pregnant woman) are not the same.

Mogo kelen don ani mogo min fila don, o te kelen ye.

(D) Yes, because the pregnant women needs to be protected and to prepare for the dangerous delivery. She needs a lot of strength, so she needs to eat well.

(F/m) True, she is not like other women. She needs to eat more. She cannot eat only the family plate.

"If two people are walking in the road, and one is carrying something on his head and the other one is not, the one with the baggage tires faster."

Ni mogo fila be tama sirakan, doni be kelen kunn doni te kelen kunn, doni-tigi de segenkadi.

(B/m) True, because a pregnant woman who eats better will have a strong and fat baby.

(B/w) True, and that's the only way to say it.

(W/m) True, because the thing that cures the child is the mother.

"A mother/person who gives out water, tomorrow they will walk in the shade."

Ma be ji bo, yalla sini i be tama a sumafe. [Figurative meaning: If you are good to people when you are able, then later when you need help, people will help you.] Unclear how this relates to pregnant women needing extra food.

(K/w) Agree.

(X) She has a right to better food, because she's not the others (non-pregnant women).

"She has to have it."

A ka kan n'a ye.

"It makes the child (fetus) happy."

A be den hinne.

APPENDIX C

Focus Group Guidelines

I. Introduction (See Research Guide)

We are here to discuss life in this village and what it means to be a mother or father. Your answers will help us to develop an education program, not only for this village, but for all of Mali.

Thank you for your time...

We hope to listen to everybody. We are not here to look for correct or incorrect answers...

Introduction of people in the group: My name is _____. I come from _____ where I have lived since _____. I am the father/mother of _____ children (and I have _____ wives). And you, my brother/sister.....

II. Interview

A. Life in the Village in general and Changes

Have you lived in this village a long time?

Could you tell me about the different changes that you have seen here, for example:

- Is "rural exodus" (leaving the village for other parts of the country or different countries) important here?
- Which groups leave?
- Is the population growing or getting smaller?
- Do children go to school? To what level?
- Do you have a literacy center here. Who attends the sessions (women, men, children)?
- What attracts you the most about life in this village?

B. Responsibilities of boys and girls

What is your position in your family?

What kinds of jobs did you do when you were a little boy/girl?

Were you the only one to do these jobs?

Do boys/girls today do the same kinds of work? If not, why not?

How are husbands/wives selected and by whom?

C. General Feelings Concerning Pregnancy

1. Feelings first time pregnant or first time wife was pregnant
 2. Cost of supporting a family
 3. (Special?) Needs of pregnant women
 4. Problems, symptoms
 - prevention in general
 - prevention of night blindness
 5. Ability of wife to ask husband for more/better food during pregnancy
 - What would people say about a man who does this
 - What if she is afraid to ask him
 6. What is a good mother/father
 - Proverbs relative to this
 7. What do your children eat
 8. Can a man himself buy food for his children, and under what circumstances
 9. What must be done for children with
 - malnutrition
 - night blindness
 10. Whom can you ask for more information about children's nutrition
 11. How is information passed around the village
 12. Do you listen to the radio
 - Preferred programs
 - Group discussion afterwards?
- (D) Advice for pregnant women (Just asked of women)
- (E) Diet during pregnancy (Just asked of women)
- Cravings

- Repugnant foods
- Recommended foods

(F) Success or Luck in raising children

1. What makes a woman lucky with her children
2. Why is a woman unlucky
3. What would people say about a lucky or unlucky woman
4. Is only the mother responsible for the health/wellbeing of the children
5. Do you know about night blindness? Who gets it?

(G) Good nutrition for children

1. Could you get your kids better food if you thought it was necessary
2. What would be the obstacles

(H) Food preferences

1. Quantity and Quality
2. Who gets the best food

(I) Availability of vegetables

1. Obstacles
2. Material needs

(J) Reactions to messages:

1. Prevention is better than cure.
2. Good food prevents sickness
3. Healthy food prevents sickness
4. Fruits and vegetables are also healthy food.
5. Eggs, meat and liver are also healthy food
(not usually asked)
6. Vegetables conserve their richness when dried in the shade
7. A pregnant woman needs to eat a richer diet than her ordinary diet

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DATE: _____ VILLAGE: _____
INTERVIEWER: _____

INTERVIEW B -- INFANT/CHILD FEEDING PRACTICES DURING ILLNESS
TRADITIONAL PERCEPTIONS OF MALNUTRITION

1. Ni bana be den la, I be do fara a ka dumuni ka wa? Chokodi?
If your child is sick, do you change his food? How?

2. Ni bana be den la, I be a bali ka dumunike wa?
If your child is sick, do you ever withhold food from him?

3. (owo) Dumuniw juman? Munna?
If yes, what foods? Why?

4. Ni bana be den la, I be a neke ka dumunike wa? Chokodi?
If your child is sick, do you ever encourage him to eat? How?

5. (ayi) Munna?
If no, why not?

6. I be "fasa/pasa" don? Fasa be bana juman ye? Fasa be sooro munfe?
Mun be fasa ban?
Do you know the disease "fasa" (marasmus). What kind of disease is it? What causes it? What can cure it?

7. I be dumuni-dese bana don? Dumuni-dese-bana be bana juman ye?
Dumuni-dese-bana be sooro munfe?
Mun be dumuni-dese bana ban?
Do you know the disease "malnutrition". What kind of disease is it? What causes it? What can cure it?
8. I be "sere" don? Sere be bana juman ye? Sere be sooro munfe?
Mun be sere ban?
Do you know the disease sere (marasmus). What kind of disease is it? What causes it? What can cure it?
9. I be "funu-bana" don? Funu-bana be bana juman ye? Funu-bana be sooro munfe?
Mun be funu-bana ban?
Do you know the disease funu-bana (kwashiorkor). What kind of disease is it? What causes it? What can cure it?

INTERVIEW C -- TRADITIONAL PERCEPTIONS/KNOWLEDGE OF NIGHT BLINDNESS

1. I be suran-fee-ye don?
Do you know the disease night-blindness?

2. Suran-fee-ye be don denmisenni la chokodi?
How do you know if little children have night-blindness?

3. Suran-fee-ye be mogow chama lay-yan wa?
Do many people here have night-blindness?

4. Suran-fee-ye be denw chama lay-yan wa?
Do many children here have night-blindness?

5. Suran-fee-ye be muso konomadu lay-yan wa?
Do many pregnant women here have night-blindness?

6. I hakili la, mogo be suran-fee-ye sooro chokodi?
How do you think people get night-blindness?

7. A be frake chokodi? A fra ye mun ye?
How do you cure it? What medicine is there for it?

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INTERVIEW D -- VITAMIN A RICH FOODS/AVAILABILITY AND USE

For each major vitamin-A rich food, ask questions as appropriate:

FOOD: _____

1. _____ be sooro san wakati juman?
During what time of the year is _____ available?
 - a. nene - cold season (Oct-Feb)
 - b. clema - hot season (Mar-June)
 - c. samin-ye donda - beginning of the rains (June-July)
 - d. samin-ye - rainy season (July-Sept)
 - e. cowla - hot/humid time between rains and cool season (Sept-Oct)
 - f. all year
 - g. other
2. Mogo be a sooro chokodi? (What is the source of this food?)
 - a. grow it themselves
 - b. buy it in the market
 - c. gather it wild
 - d. catch it (fish)
 - e. have chickens/guinea fowl

If people grow the food:

3. Mogo chama be a sene wa?
Do many people grow it?
4. (owo) Mogo b'a sene foro-kono wali nako-kono?
If yes, do people grow it in their fields or in a kitchen garden?
5. **NEED BAMBARA TRANSLATION**
Is there any reason why more people can't grow this food?

If people buy the food in the market:

6. Mogo chama b'a san lokola/sugula wa?
Do many people buy it in the market?

7. Loko-fiye/sugu be min?
Where is the market?
8. Don juman ye loko/sugu ye?
What day is the market?
9. I hakili la, a da ka gelen?
Do you think this food is expensive?
a. A da ka gelen. (It is expensive).
b. A da ka gelen dooni. (It is a little expensive).
c. A da ma gelen/A da ka nogo. (It is not expensive).
10. **NEED BAMBAPA TRANSLATION**
If (a) - do you think more people would buy it, or people would buy more of it, if it was less expensive?

If people gather the food in the bush:

11. Mogo chama b'a bo kungo-kono wa?
Do many people gather it wild?

If people fish themselves:

12. Mogo chama be jege moo wa?
Do many people go fishing themselves?

If people raise chickens/guinea fowl themselves:

13. Shea/kami be mogo bolo wa?
Do people have chickens/guinea fowl?

For each food rich in Vitamin A:

FOOD: _____

1. _____ wakati-kono or Ni _____ sera,
I b'a dun shen joli cle kono?
(During _____ season, how often do you eat this food in a day?)
 - a. shen _____ cle kono (_____ times a day); don-o-don? (every day?)
 - b. shen _____ kunyogon kono (_____ times a week)
 - c. shen _____ kalo kono (_____ times a month)
 - d. shen _____ san kono (_____ times a year)
 - e. An t'a dun. (We don't eat it)
 - f. An ta sooro ka dun. (We can't afford to eat it)

2. I be a dun chokodi? I be a kene dun walima a tobile?
How do you eat this food, fresh or cooked?

3. I be a gwansan dun wa?
Do you eat it by itself/as a snack?

4. A bi ke na la wa? Munna?
Is it part of the sauce? Why/why not?

5. Denw be a dun wa?
Do children eat it?

6. Ali denw fitini min te san kelen bo?
Even children less than 1 year?

7. (ayi) Munna? Munna denw/denw fitini t'a dun?
If no, why don't children/little children eat it?
a. A da ka gelen. (It's too expensive)
b. A ta fe/te so. (He doesn't like it/refuses it.)
c. A ka dogo/A ma se. (He is too little/not old enough).
d. A mayi den-ma. (It's bad for him.)
8. (c or d) Munna a ka dogo/munna a mayi den-ma?
Why is he too little to eat it? Why is it bad for him?
9. (owo) I hakila la, a ka fisa den-ma kosobe? Munna?
If yes, do you think this food is especially good for children? Why?
10. Dumuni jumayn ka fisa nye-ma?
What foods are good for your eyes?
11. Denw be a dun wa?
Do children eat these foods?
12. I be "vitamin" don/"Vitamin" ye mun ye?
Do you know what vitamins are?
13. Ni a fora i ye ko i ka ni dumuniw di denma ka a tanka surofeeyenma,
i be u di a ma wa?
If you were told that these foods can protect children from night-
blindness, would you give them to your child?
- (ayi) Munna?
If no, why not?
- | | | |
|----|-------------------|--|
| a. | A da ka gelen. | It's too expensive. |
| b. | N'te a ma soora. | I don't have time. |
| c. | A mayi den-ma. | It's not good for children. |
| d. | Surofeeyen ta la. | He doesn't have surofeeyen/it's not a problem. |

Food Consumption Questions

1. What do you usually eat for breakfast?
2. What do you usually eat for lunch?
3. What do you usually eat for mid-afternoon meal (kids only)?
4. What do you usually eat for dinner?

Other topics for questions:

Cooking of carrots, pounding them to add to sauce as a flavoring.

Discussion of objections/problems with drying foods in the shade - either in the house, or in the communal millet pounding rooms, or just in the shade under a tree.

Food taboos for pregnant women:

are there any foods that pregnant women shouldn't eat?

are there any foods that pregnant women usually don't eat?

do pregnant women eat more food or less food than usual? why?

[NOTE: the questions for these topics can be developed/translated in conjunction with the animatrices in Macina as part of the training]

APPENDIX D

Bambara / English Glossary

amine	to get
ani	and ("ni" is and, but you have to have a vowel before it if the previous word ends in a consonant)
ankoro	old
ba	can
ban	end, destroy, kill
bana	sickness/illness/disease
banamise	sicknesses
barake	work/working
be	to be/to make
binye	liver
bo	come out (uproot in this case)
boli	to run
caya	a lot (pronounced "chaya", the same word as "chama")
cho	beans ("sho")
cogo	condition (pronounced "choko")
culo	ear
damu	happy
de	who
deme	help
den	children
dese	insufficiency, deficiency
di	to give
di	good/sweet
dogo	little

don	to know
don	person (suffix)
donfarila	a person's body
doni	comes
doni	baggage
donitigi	the person carrying the baggage (literally "baggage master")
dugukono	center of the village
duman	good (as in good tasting)
dumuni	food
fana	generic term for food in Bamako, in Macina region, refers to cooked rice (<u>kini</u> in Bamako)
fanga	strength or force
fari	skin
farikolola	body
fen	thing
fenmi	something (also "fenmin")
fila	two
fitini	little
fo	say
frou frou	fried cakes
fura	medicine
furake	curing
furukelan	furuke = spouse-male (i.e. husband) furukelan = a husband who is happy to be married and who takes care of his wife
gelen	difficult (also spelled guele), as in "A da ka gelen." "It's price is difficult - it is expensive."
genni	burn
giri	heavy (difficult to digest, heavy on the stomach)

hakili	thought/to think
hinne	pleasure/happiness
i	you
janto	caring (for something)
jege	fish (also spelled djege)
Jelibaba Sissako	Man's name, famous singer and <u>kora</u> player, that people like to listen to on the radio
jennili	to broil
ji dogoya	the drought
ji ka dogo	when the water level goes down in the river
jiri	tree (also "yiri")
joli	blood (pronounced more like "jeli")
joni	someone
jugu	bad
ka	able to/can
kadi	faster
kadi ye	good/strong
ka fisan	is better than
kami-fan	guinea fowl egg
ka nyi	has goodness/is good
karsa	someone
kasa	smell/odor
kateme	is better than
kelen	one
kofe	later
kolo	bones
kono	the inside of something, stomach/"insides"

kono	(different tonal pronunciation) bird - in the countryside, many people say that "bird" causes sickness in children, especially malaria - not any particular bird, just sort of a "spirit bird" - children wear amulets against "kono"
konobana	bird sickness, usually means malaria
kono yelena	stomach ache, right in the middle, up high (heartburn?)
koro	old, to age
korola	older
kosobe	a lot/very much
kouni	swallow
kuma	time
kunbe	prevent
kun kadi	good luck
kunn	on the head
lado	to take care of
lafia	rest/restful
lahinne	pleasure/happiness
lasegikadi	to go back or go away
ma	mother
<u>Ma samafu; a mogo t'a yerela</u>	A mother who doesn't care, a person who doesn't care.
<u>Ma timinandi</u>	A mother who is always working for her children (she never sits still, but is always doing something).
me	to hear/to understand
mogo	person
mogoma	to/for a person
mogo o mogo	whoever, whichever person
mnyu	patience

nafa	strength, force
nafama	healthy (as in good for you)
nako-den	vegetable (literally "garden children")
nato	coming
nege	something you really want or need, craving, desire
negela	class of foods, includes meat, fish, eggs
nen	tongue
ni	life
ni	if
ni	than
nginye/nigna	mouse
noro	look good
npalapala	wild plant (tree)
nyuman	good
o	that
o te	are not
piripirito	flopping around (also pronounced firifirito: onomotopoetic)
sa	snake/serpent, as in "sa jege" = snake fish
sababunyumam	"good things happen to him"
sai jeman	anemia (literally "white sai")
sai neremuguma	jaundice (literally "yellow sai"), "ictere" in French
samafu	doesn't care/is apathetic
sanji	rain (literally "sky water")
segen	tired
sen	legs
sere	disease children get from nursing from a mother who

	is pregnant again
serebana	(see sere, above) Also spelled "cerenbana"
shea-fan	chicken egg (in the rural areas, most people use "kili" for egg)
shi	feather
sigi	strong
sirakan	in the road
sogo	meat
soumbala	fermented locust bean
surofi'en	night blindness (suro = night, fi'en = blind)
t'a fe	"not like it"
tama	walking
teli	faster
tien/cien	ruin
tienlenye	ruin something badly
timinandi	always working
tle/cle	sun
tobiliye	to boil
tonson nymi	syphilis
u	they, them
walisa	because
wulu	dog
ye	to be
yerela	for yourself (yere is "yourself")
yiri-den	fruit (literally "tree children")
zaban	wild plant (small tree)

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yerela	for yourself (yere is "yourself")
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115-